

June 9, 2003

MEMORANDUM

UTAH DEPARTMENT OF TRANSPORTATION

TO: Jim McMinimee, P.E., Chairman

FROM: Farrell Wright
Secretary, Standards Committee

SUBJECT: Standards Committee Meeting Minutes and Next Meeting

The next meeting has been scheduled for Thursday, June 26, 2003 at 8:00 a.m., in the main 1st floor conference room of the Rampton Complex. The agenda for the meeting follows.

	Item	Remarks	Sponsor
1.	Minutes of April 24, 2003	For approval	Farrell Wright
2.	800 Series Standard Drawing Conversion Process	For approval	John Leonard
3.	Standard Drawing GW 10, Delineation Application	For approval	Robert Hull
4.	Standard Drawings TC 17, Traffic Control Single Lane Closure Moving/Intermittent Operations and TC 18, Traffic Control Multi-Lane Closure Moving/Intermittent Operations	For approval	John Leonard
5.	Standard Specification 01452, Profilograph and Smoothness	For approval	Howard Anderson
6.	Standard Specification 02962, In-Place Cold Recycled Asphaltic Base	For approval	Howard Anderson
7.	AASHTO's Guidelines for Geometric Design of Very Low-Volume Local Roads ADT (≤ 400) for APWA Projects	For discussion	Jason Davis
8.	Standard Specification 00727, Control of Work, 1.5B Discrepancy Ranking issue	For discussion	Farrell Wright
9.	Review of Assignment/Action Log	For review	Jim McMinimee
10.	Meeting Improvements (on-going agenda item)	For discussion	Jim McMinimee
11.	Other Business		

JCM/ba
Attachments

cc:

Ahmad Jaber
Director, Region One
Randy Park
Director, Region Two
Tracy Conti
Director, Region Three
Dal Hawks
Director, Region Four

Sterling Davis
Dave Nazare
Darrell Giannonatti
Hugh Kirkham
Tim Biel
Stan Burns

Robert Hull
Jason Davis
Farrell Wright
Barry Axelrod
Carlos Machado, FHWA
Mont Wilson, AGC

April 24, 2002

A regular meeting of the Standards Committee convened at 8:00 am, Thursday, April 24, 2003, in the 1st floor conference room of the Rampton Complex.

Members Present:

Jim McMinimee	Project Development	Chairman
Jason Davis	Engineering Services	Member
Farrell Wright	Standards and Specifications	Secretary
Dave Nazare	Structures	Member
Darrell Giannonatti	Construction	Member
Robert Hull	Safety	Member
Sterling Davis	Maintenance	Member
Tim Biel	Materials	Member
Mont Wilson	AGC	Advisory Member
Roland Stanger for Carlos Muchado	FHWA	Advisory Member

Members Absent:

Tracy Conti	Region 3	Member
Carlos Muchado	FHWA	Advisory Member

Staff:

Barry Axelrod	Standards and Specifications
Patti Charles	Standards and Specifications
Stan Burns	Research
Ed Rock	Region 2
Karl Verhaeren	Region 4
Fred Doehring	Project Development
Glenn Schulte	Traffic and Safety
Jason Richins	IT Division
Richard Manser	IT Division

Visitors:

Standards Committee Meeting

Minutes of the April 24, 2003 meeting:

1. Minutes of February 27, 2003 meeting were approved as written.

Motion: Jason Davis made a motion to accept the minutes as written. Seconded by Darrell Giannonatti. Passed unanimously.

2. Standard Specification 02705, Pavement Sawing (Agenda Item 2) – Item presented by Ed Rock.

Ed recapped the discussion from the last meeting. The two main changes are payment as part of removal and the change to the title from Saw Cutting to Pavement Cutting.

Discussion points were:

- Barry asked if the two submittal sheets required different specifications. Ed said he submitted the two sheets to separate previous discussions from the recommendation to allow alternate methods of asphalt cutting. In addition, Specifications 02222, Site Demolition - Concrete and 13553, ATMS Conduit are changed to reflect the title change to 02705.

Motion: Dave Nazare made a motion to approved Standard Specification 02705 as presented. Seconded by Jason Davis. Passed unanimously.

3. Item previously deleted from agenda (Agenda Item 3). This was the 800 Series Drawings.
4. Standard Drawing PV 8, Rumble Strips, Centerline Process Update (Agenda Item 4) - Presented by Bob Hull.

Bob said the inclusion of this item on the agenda caught him by surprise because there is not much to update. He pointed out that there is an experimental feature on SR-6.

Discussion points were:

- Jason asked if Bob was aware of an application in Arizona. Bob indicated he was and that some of the details were used in the UDOT Standard Drawing. Fred referenced similar applications in California.
- Jim said he was confused as to why the item was on the agenda if Bob didn't ask for it to be. Barry said he asked last time if the item should be on just the action log or on both the log and agenda. The discussion indicated that the item should be on both, with a general discussion for the agenda.

- In response to a question as to when the test project would start, Bob said he didn't know.
5. Standard Drawings, BA 4 Series and Standard Specification 02841, Traffic Barriers (Agenda Item 5) - Presented by Glenn Schulte.

Glenn said that BA 4D, 4E, and 4F are new drawings. He said the new system does not require any maintenance. Several systems have been installed around the state. The item is an alternative to a crash cushion where we don't need a crash cushion. The end section can be carried into the hillside. Glenn said UDOT has never had a standard like these and that he developed them with the help of Ben Fitzgerald in the Baltimore FHWA Recourse Center.

Discussion points were:

- Jason referring to the comments in paragraph A in the submittal sheet about maintenance said it doesn't look like the drawings were shared with Maintenance, Construction, or Contractors. Glenn said he had some discussions with various areas. Jason asked if he had gotten any comments. Glenn said the Maintenance people he talked to thought it was great. The other submittal sheets for the remaining drawings didn't address comments either.
- Bob said that if Maintenance is asking for this then shouldn't they be the ones presenting it. Jason said the way he understood it was that Maintenance was asking for alternatives to crash cushions and this is what Traffic and Safety supplied. Bob said he was asking procedurally because if Maintenance asked for the alternative shouldn't they be the ones presenting it and answering these questions. Bob said they are providing Maintenance with the resource of going out doing the footwork and finding the information from their expertise level and then have to defend it as well.
- Jim said he thought he understood Bob's question. The purpose of having the form that we do and the procedure we do about involving stakeholders is to have comments on the sheet, whomever presents the information. Bob said the submittal sheet is in the same realm as the champion of a QIT. Bob said they are coming in here because they have the general background, but yet they're not necessarily the people initiating the change. He said he was wondering if the ones initiating the change should also be the ones presenting it. Jim said that is something that should be considered when filling out the sheet. Jim went on to say the point behind having the sheet for this group is to have an understanding that everyone was involved in building the standard. Bob said we are talking around the issue. He said the only reason these drawings are here is because of Maintenance, so they should be presenting this. Jason said that Safety is the owner of the sheets. Glenn went on to discuss his method for designing and changing Standard Drawings.

- Jason, referring to Sterling, said he would be in the “hot seat” and that his group would now be dealing with the drawings. Jason asked Sterling if he had any problems with the drawings. Sterling asked how he could be in the “hot seat” when he wasn’t aware the request had come in. Jason said Sterling was reviewing for Maintenance and that he had the package in front of him. Sterling agreed, but said the comment that Maintenance made the request wasn’t from anyone in his office.
- Glenn went on to clarify saying that it was a Maintenance issue in that they wanted a cheaper, less maintenance intensive system. The end is buried in the ground so there is no end section to get hit. Glenn added that a note on each of the drawings indicates that Maintenance personnel should be consulted before using that type of system.
- Bob said that from now on he recommends that whomever is requesting the change come to the Standards Committee meeting as a backup.
- Sterling said he doesn’t have any problems with the design, adding that he has not discussed this with anyone in the Maintenance area. He said that doesn’t mean that someone in field may not have concerns or problems with the design.
- Jim asked Bob if his question was has anyone from Maintenance reviewed the drawings from a constructability and maintainability standpoint. Bob agreed. Jim said that is a different issue as to who brought this up. Jim said the purpose of the submittal sheet is not to discern who brought it up but to make sure everyone had a chance comment on whatever is being proposed.
- In response to a comment, Glenn said the drawings are currently being used as detail sheets. Jim asked if he had a chance to fix anything on the drawings as a result of these projects. Glenn said he was not in on any of that. Darrell said that is how Construction is going to start approaching things on Construction Specifications. Sterling commented that the field maintenance people are asking for the help and that Traffic and Safety is trying to provide the help and that his office is not in the loop. He added that at this time he wasn’t sure they needed to be in the loop. If the field people are comfortable with it then that should be fine.
- Following this part of the discussion, Jim asked if anyone had specific comments about the drawings.
- Referring to BA 4D, Jason asked if the reference to “Local Maintenance Personnel” in Note 1 could be more specific. Karl said he wondered why there was a reference at all. Glenn said he worded it that way because the Maintenance people are more familiar with their roadways than anyone else. He said the Maintenance Engineers don’t know the road system as well as the supervisors, but he could change the note if needed. Sterling said each of the Station Foremen would know their area but he didn’t know if the Maintenance Area Supervisors

were that familiar with the areas. To resolve the issue Sterling said the reference should be Maintenance Area Supervisor.

- Jason questioned the meaning of note 3. Glenn explained that the note was changed since the minutes' package had been distributed. Based on the discussion the detail may need to be updated.
- Additional comments on BA 4D indicated that in Section B-B the reference stated "No Flatter," but Section C-C indicated "Not Flatter." In Section B-B, the reference should state "No Flatter Than" and not "Not Flatter Then."
- Jason asked if the post referenced in Section A-A was suppose to be different from the other posts. Glenn indicated that it should be different. Posts 1, 2, and 3 are metal but the other posts can be either wood or metal. Comments indicated that a reference that either is acceptable should be on the drawing. Glenn thought other Standard Drawings covered this.
- There was a question about corrosion problems. Glenn said according to FHWA, similar applications in Maryland have not shown any corrosion in the 20 years of use.
- Referring to the Flare Rate tables on drawings, Farrell said the tables are not designed with the same look and should be fixed. Glenn pointed out that not all drawings were done in Microstation for this presentation. Some of the drawings were done in Visio but all will be standardized in Microstation.
- Dave asked if the steel posts referenced in BA 4F were galvanized and where was that stated. Glenn said the reference is in 05120.
- In response to comments Glenn said that the Contractor option and zinc reference in Notes 3 and 4 of BA 4F are being changed.
- Dave said he thought some of the notes in BA 4F actually belonged in the specification, not on the drawing. Glenn said because this is a new drawing he wanted the Contactor or Maintenance person to know exactly what they are doing. In regard to the concrete class reference Dave said he didn't think the "AE" reference was needed. Glenn said he got the information from Boyd Wheeler. Dave said the "AA" could be used in this case.
- It was pointed out during the discussion that some Maintenance areas don't have electronic access to the drawings and hadn't received paper copies in over a year. Both Sterling and Glenn pointed this out. Glenn said this had been passed on to Farrell. Barry explained that the distribution process has been updated in an attempt to solve the problem.

- Jim asked Farrell if in the past the Standards Section was responsible to make sure the drawings are coordinated. He asked Farrell to make sure the drawings are cleaned up properly so they are standardized.
- In response to the distribution problem within the Maintenance area, Farrell said he has been working on putting together an email group of Maintenance supervisors, area supervisors, and foreman and Construction Project Engineers. The email group will be used to alert this group of changes to the Standards.
- Dave asked if two separate specifications, one for concrete barrier and one for guardrail, was a possibility. Glenn said he had that type of discussion with John Leonard about separating them, including separating the concrete types. Other than stating it was a good idea there did not appear to be any resolution or tasking.
- Jim asked if there were any other comments on BA 4F. There appeared to be several side discussions but nothing could be documented.
- Glenn pointed out that a guardrail class would be taught May 13 - 15. These drawings will be shown to the 30 or so contractors attending the class.
- The discussion moved on to drawing BA 4G through 4L. Glenn explained the types of systems and what is available.
- Jason asked about hazards and how far back they should be. Glenn said he had not developed that chart yet. Glenn said that everyone uses the AASHTO Roadside Design Guide even though the information in the Guide is confusing. Glenn commented that a three-foot minimum dimension is shown on BA 4I could be added to the other drawings. Jason commented about an earlier decision not to duplicate AASHTO tables on the drawings. Glenn said whatever the decision is, he can either add the information or not. Glenn said he was just trying to make the designers and Consultants jobs easier. Bob said this is an interesting discussion because of something we would think is very simple. Commenting on the letter size and fonts that are used for roadside signs, Bob said these are pretty standard and easy to find, but we still get all sorts of variations on projects. Glenn added that this series of drawings are more of a design tool than an installation tool. Bob said on this drawing a three-foot minimum is shown. He asked if there are any circumstances where we would go beyond that minimum. Glenn didn't think there were any circumstances. A suggestion was made to make a "Note" reference that states "See Roadside Design Guide." Mont asked, "Are you going to tell that to a Contractor?" Glenn said that was his point exactly. Several other suggestions were made.
- Jim asked for a recap of what is to be changed on the drawings.
- Glenn said he would leave the three-foot minimum until he resolves the issue on the other drawings. At that time he said he would update the drawings.

- Jim asked Mont, Karl, and Darrell if this covered their concerns about using the drawings to install the systems. No one commented.
- Jason suggested changing the wording of Note 4 on BA 4G so there is no confusion as to what is buried. Glenn said he would reword the note. It was also pointed out that this note was worded differently from a similar note on BA 4H.
- Jim asked if there were any more comments on BA 4G. Being none, he asked about 4H, 4I, 4J. Dave commented about the dimension in the title of 4J. It should be 12 feet, six inches. There were no other comments on 4J and no comments on 4K. No significant comments were made on 4L at this time. Jim said he had a question on 4G that he missed. He asked where is it that we specify our end treatment hazard markers. Glenn said that is on the Crash Cushion drawings, but that hazard markers are not used. He went on to explain the markings.
- Jim asked about the reference on the BA drawings. Glenn said there is none and that it is covered on the CC drawings. Glenn said that if the crash cushion information on the BA drawings is causing confusion he could remove that information. The BA drawings are typical installations. A suggestion was made to add a note to see the CC drawings for crash cushion installations.
- Jason referring to 4L, said the drawing indicates CRT posts with two wood blocks. He pointed out that the specification allows options. Glenn said the CRT post is specific to that design. He did say the word “wood” could be eliminated.
- On page 6 of 8 of the specification (02841), Jason asked if the 96 percent requirement in 3.2C2 is actually tested. Glenn said that requirement has been in the specification for a long time, way before his time. Glenn added that he didn’t think it was tested, based on what he has seen. He did say that it something that needs to be checked to make sure these systems work. On the same item, Farrell asked why does the specification reference the Compaction specification (02324) when the 96 percent requirement is spelled out. Glenn said this has also been there for a long time. Farrell said he didn’t think it applied to guardrail posts.
- Referring to 02841, 3.4B, Jason indicated the requirement was very subjective. Glenn explained that he thought the seal was put in there because of maintenance and drainage issues. Jim said there didn’t appear to be any resolution. Karl said he wasn’t sure it even needed to be a requirement. Glenn asked if he was referring to the seal. Karl said yes. To clarify, Karl said it was not needed in all cases and Glenn agreed. Following a short discussion Mont said in his opinion to leave it as is.

- Jim said the item is listed for approval on the agenda. He asked if someone wanted to make a motion or should the item be brought back for the next meeting. This would include the drawings and the specification listed in item 5. It was pointed out that the drawings and the specification are tied together so to approve one without the other would only cause confusion. The drawings required major updates. Glenn said he could provide a special provision and detail sheets if needed.
- There were some questions on the handling of special provisions and detail sheets and if having many different ones caused problems in projects. For informational purposes Jim said that part of the Quality Improvement Team Group (QIT) there is a Design sub-QIT that will be looking at dealing with special provisions and standards.
- The BA drawings and specification will be brought back to the next meeting.

Action Item: Farrell to review the BA series drawings for standardization prior to publication.

6. Standard Drawings, CC 7 and CC 8 Series (Agenda Item 6) - Presented by Glenn Schulte.

Glenn said the current Standard Drawings were confusing so he spread the details out over additional drawings. Glenn pointed out that the drawing numbers would be updated further with CC 7A becoming CC 7, 7B becoming CC 8, and CC 8A and 8B becoming CC 9A and 9B.

Discussion points were:

- In response to a comment Glenn said for the most part the drawings were just cleaned up. He did point out the specific design notes that were added. He added that during inspections of projects over the last 18 months that he and John Leonard had done they found the Department was not getting what they paid for. The changes don't address design issues, but provides Contractors and Inspectors all the information they need to know to get the systems installed properly.
- Glenn went on to discuss some of the problems they found on various installations. For example, bolts were not embedded the proper depth or were cut off. The notes now state to install based on manufacturers requirements. He went on to explain details of the various systems.
- Jason pointed out that the last note on three of the drawings was not on the first drawing. Glenn said this was an oversight.

- Jim, referencing CC 8A (9A), said he didn't see a place where it referred to either note 9 or 10 on the drawing. Glenn said it was his understanding that all notes didn't need a reference on the drawing, adding that all notes should be read. Barry said if that were changed here then many other drawings would have to be updated. Farrell said there are particular places where you want to reference a note, but all the notes on a drawing are required for that drawing. Jim said he hadn't heard that discussion before.
- Commenting on CC 9A and 9B, Jason pointed out the reference to BA 4A. Because they weren't approved earlier, he asked if that would cause problems. Barry pointed out the BA 4A is already approved and was not part of the previous agenda item.
- Referring to CC 7A, Farrell asked about the Note 5 reference under the Typical Section A-A detail. He pointed out the note was also referenced on the four to one slope on the detail. Glenn didn't know why it was referenced in both places. He said he would check to see if it is needed below the title of the detail.
- Glenn said he forgot to point out a major change on all the drawings. He said the change is based on the Roadside Design Guide and current national standards. The change is in the approach area with the transition length being changed. Glenn said a table for applicable tapers and distances was added. This will make a significant difference in installation. The existing standard had 50 feet but that did not provide enough recovery time at higher speeds.

Motion: Dave Nazare made a motion to approved Standard Drawings CC 7, CC 8, CC 9A, and CC 9B as modified. Seconded by Darrell Giannonatti. Passed unanimously.

7. Effective Date and Implementation of Approved Standards, (Agenda Item 7) - Presented by Farrell Wright.

Farrell explained that this has been an issue for several years but there has never been any resolution. He added that a couple of recent phone calls have brought the subject to light again. The question is: When does an approved Standard Specification or Drawing become required and effective for use in projects? Is it when the project is compiled, ready to advertise or when brought to the Advertising Section? Farrell said right now if a change is made and it has been brought to the Advertising Section they are told then to make changes. It creates a lot of work for the Advertising Section. Farrell reiterated that he would like to know when does a change become effective to a project. Is it immediate? Farrell said he listed some priorities on the handout after discussing them with Jason. He explained that a Priority 1 would be immediate, as soon as the Standards Section completed their processing. He added that one not so critical would be a Priority 2. When a Standard is approved the Standards Committee would set the priority.

Discussion points were:

- Barry explained that there might be a delay from Standards Committee approval until they get the updates and complete their processing. This delay could be a week or two. Barry said this system would reduce the number of questions they received on how to handle changes.
- Farrell said this change has been needed for years.
- Jason asked if another category is needed for those items that need to be added to an existing project by change order. Earlier comments indicated that this might be needed. Comments indicated that the higher priorities would be very infrequent. The priority for change orders would be a Priority 1, with the presented options becoming Priority 2 and 3.
- Jim said if we are going to do this then lets talk through the process. He added that at the time of approval the Committee would have to determine the priority level. Jason asked if that is something the group or person submitting the change should recommend. Barry asked if the submittal sheet should be updated to add a priority recommendation section.
- Mont asked if a specification was approved today, could a lag time be put with the specification of one or two weeks or a month for example. That way an effective date could be set without having to worry about priorities. Jim said that wouldn't eliminate the ones that we would like to retroactively have in projects. As an example Jim said a safety item would be one we wanted to make sure got into projects both as a change order and addendum. By having only one category we wouldn't be able to address those issues. Jim asked Farrell if that was what he was trying to get at with this item. Farrell concurred.
- Different options were discussed. Sterling suggested picking a specific effective date. Jim said he liked Mont's suggestion because it has a lot less administrative impact, adding that nothing needs to be determined at the time of approval. Barry asked about the date that would go on the specification or drawing, explaining that the date on those items now is the approval date, today for example for those approved today. Currently if a change is not finalized and published for two more weeks it still has today's date.
- Jason said that even if the specification is ready for publication, we might not want to make those changes now. What date do we want to put on the specification? Jason said one of the suggestions was a blanket date a month in the future.
- Jim asked if an approval and effective date could be put on the approved item. With two dates shown the method of annotating that date on standards would have to be changed.

- Jim commented about the approval date, asking if that date is used so a specification could be tracked back to a particular meeting. Dave said the approval date should always be the meeting date.
- Jim asked Barry how would it impact them if everyone understood the effective date was a month after approval. Barry said as long as everyone understands that. Barry went on to explain that some changes are ready within a week of approval, but some are not ready for three weeks. In that case by time the publishing process is completed it could be more than a month. A date a month in the future might not always work. Barry explained that if the process took three weeks to process and publish, with a one month effective date we would basically be in the position we are in now. That is the reason for the recommended priorities. Barry said that information on the priorities could be put on the web and in the notices that are put out with each change. Barry said that would answer a lot of the questions they receive.
- Following further discussion Barry said they can't make the determination as to when a change is put into a project. That information needs to be provided to the Standards Section. Commenting, Jim said a hard date is the problem.
- Tim, referring to the administrative impact mentioned by Jim earlier, asked if it is that much of a problem to ask about a priority. Dave didn't think so. Jim said if that is what the group feels then it isn't a problem.
- Sterling said it is something that we can understand fairly quickly, but is it something everyone else will understand? Tim said he liked Barry's suggestion of adding it to the submittal sheet, making the presenter think about the priority. Based on a priority system Barry said they would figure out how to make the notification. With the information on the submittal sheet, when a standard is approved Barry said they would then know how to handle the change.
- Mont suggested that each of the priorities be defined. Barry asked if he meant on the submittal sheet or when the change is published. Mont said so that someone looking at the specification knows what it means. Farrell commented that the Standards Section would be visiting all four regions in the next few weeks and that this would be high on the list of discussion items for the visit.

Motion: Tim Biel made a motion to approve a priority system for specifications to clarify when and how they are to be implemented with projects that are either in contact, advertising, or design as previously discussed. Seconded by Jason Davis.

- Sterling asked to discuss the item. He said basically we are talking about a priority system that this Committee uses. When the notice is sent out the users would be told how to implement the change. Sterling said we wouldn't be telling the user it is a priority 1, 2, or 3, but how to handle the change.

- Barry said they can work on the wording, but the main thing is the guidance to go that direction.
- Fred said that the motion referred to specifications, but he assumed it referred to drawings as well.

Motion: Tim modified his motion to include changes to the Standard Drawings. Seconded by Darrell Giannonatti. Pass unanimously.

- Dave asked about the items already approved today. He thought the Pavement Sawing specification and the Crash Cushion drawings were all priority 3s. Farrell said the implementation would be two weeks after the publication notice for projects being advertised. An appropriate notice will be sent out with the changes. Jim asked if anyone disagreed with Dave's assessment. There was no disagreement.

8. Standard Summary Sheets (Agenda Item 8) - Presented by Fred Doehring.

Fred said for quite a while there have been requests to put the summary sheets back into the plan sets. He said he received direction to put together a team to look at this. Fred said these requests came from construction crews, designers, contractors, and suppliers. The designers felt that it helped them with QC/QA. The contractors feel that it helped them in preparing their bids and the field crews find it easier to inspect with the sheets in-hand.

Fred said the team included representatives from various regions, design, and construction. Consultants were also included. There were no contractors on the team. A set of approximately 30 standard summary sheets was developed. Fred said the problem was that PDBS required the information to be double entered, once in the summary sheets and then into PDBS. He said they developed a macro and a series of spreadsheets. The data is entered once. A button is then selected that executes the macro that exports the data from the spreadsheets to PDBS. He pointed out the layout of the summary sheets using an example provided in the minutes' package and how the macro works. He said a lot of time was spent working on this and that the summary sheets are up and running and are functional. Fred said he didn't know how to implement a change like this and a suggestion was made to bring it to the Standards Committee.

Discussion points were:

- Jason pointed out that the item for approval is for the use of summary sheets, not the summary sheets. It is a process approval.
- Jim asked if the only reason summary sheets were not included in projects was because of the difficulty in programming it into PDBS. Fred said no. Fred said the intent was that the data generate by PDBS would replace the summary sheets. He said every piece of data represented on the summary sheets is in fact represented in PDBS. Fred said it is a formatting issue. The data that comes out of PDBS is on

an 8 ½ x 11 sheet with every discrete station listing an item. He said the result is reams of data for a project indicating where the data is found, adding that they made the data more concise in the old, much more readable format.

- In response to a question, Fred said the recommendation is not to include the detailed report in the plan sets and bid packages anymore.
- Jim asked if there were a possibility that contractors were included on the QIT. He then asked if anyone talked about the possibility of having the other sheets in the plan sets. Fred said no, that everyone wanted to get rid of the current sheets.
- Farrell provided a little more history on the sheets. He said that when PDBS was being developed ISS had been working to get an application to export the data to PDBS. ISS was having a lot of difficulty getting that done so the decision was made to use the solution in PDBS. Farrell said Fred and his team were able to put the change together because of the change in technology over the last few years. The new method will work as a legitimate way of crosschecking information that couldn't be done before.
- Mont asked if approved, could the contractor expect to see summary sheets in all projects. Fred said he thought so, adding that an exception could be Orange Books. He commented that in the past the summary sheets were in Orange Book projects so he didn't know why they couldn't be included now. In response to a question from Jim as to why Orange Books, Fred said the only exception he could think of was Orange Books but he didn't know why they would make that exception.
- Farrell said the Table of Contents files for projects could easily be changed to show the use of summary sheets.
- Fred said this is how they are calculating their quantities anyway, in a Quattro or Excel spreadsheet. The data is then manually entered into PDBS.
- Jim asked if in the Electronic Plan Room, is it a Quattro spreadsheet. Fred said that when they developed these spreadsheets they were Excel files. He said they felt very strongly that they had to be represented as Microstation files, but the old version of Microstation had some compatibility issues with the old version of Excel. With Microstation 8 and the latest version of Excel the limitation has gone away.
- Fred said one of the past concerns from the Consultant community was the use of Axiom in the process and that they would have to purchase the software. With the use of the newer versions of Microstation and Excel that problem is moot. A cut and paste from Excel into Microstation can be done so whenever a change is made to a spreadsheet, Microstation is automatically updated. The file will be included in the Electronic Plan Room as a dgn file.

Motion: Darrell Giannonatti made a motion to allow the use of summary sheets. Seconded by Jason Davis.

- Dave asked if the summary sheets had been a standard drawing in the past. Fred said no. Farrell said each region had its own format so this will standardize that.
- Dave asked if designers need any guidance as to placement in the plan sets. Farrell said the sheets would go in the plan sets in place of the station-to-station sheets. The color coded Table of Contents (TOC) files would cover this.
- Dave commented that his motion was to allow the use of the summary sheets. He asked if there was a date when we would require them. Fred said if there was a project ready to advertise two weeks from today and it had not gone through this process it would be a burden to do so.
- Jim asked Fred what he thought would be a reasonable date. Sterling asked if this would have a priority after it passes. Fred said it would take some coordination with the regions. Jason suggested a July 1st implementation date.
- Jim said Darrell had previously amended his motion to make it required. Jim asked if there was any energy to just making the summary sheets available. They would be encouraged, but not required. Jim said it may be a reasonable expectation to have it in all projects, but he was just asking. Dave said he was suggesting that it be available now, but on September 1st it would be mandatory, or something like that. His suggestion was to put it out there far enough as not to burden any projects.
- Fred said the current method is a burden. Quattro or Excel is used to figure out all the quantities. The information is then printed and manually typed into PDBS. The new method eliminates the last step of retyping.
- Barry pointed out that the TOC files would have to change. He asked if both methods were available for use, would two sets of TOC files be needed. Farrell said it would be a training issue on the use of the TOCs.
- Jim said he asked the question about using the sheets as an option, not a requirement to see what kind of information we get. He said that it seems that it should be a requirement, adding what sold him was that we would be saving time and money in the design process. He said he hasn't heard anyone say it is going to cost us more time and money. Fred said printing costs might go up because there will be more plan sheets that are larger.
- Dave said the sheets could be available now for anyone wanting to use them but put the required date further enough out so that we don't burden a project. Farrell said he liked the idea of available now, required September 1st.

- Jim asked if anyone had a better date than that. Mont asked why so late. Various comments were made. Fred said in-house they are going to switch and in some cases already are using the new sheets. He asked if a different requirement for in-house versus Consultants was needed. Jim asked how would that be administered. Karl said he thought a lot of Consultants are already headed that way. Jim said someone would have to get with Marie Walton to have the Consultant Services contract language modified.
- June 1st and July 1st dates were suggested. Fred said he thought the June date was a little to close.

Motion: Jason Davis amended Darrell's motion. He moved to make the use of summary sheets required July 1st. Seconded by Tim Biel. Pass unanimously.

9. Standard Specification 00725, Scope of Work (Agenda Item 9) - Presented by Darrell Giannonatti.

Darrell said he wanted to let everyone know that the Region Construction Engineers (RCE) Committee is going to be operating differently from here on out. They are going to be an approving entity for specification that are within their jurisdiction, the same as the Region Materials Engineers do for the Materials' specifications. Darrell said that from now on they would like to work on the specifications as a group and approve them as a group before going to Standards. With that being said, Darrell said he was pulling 00725, adding that it needs a little more work. He said they want to get into a process where they utilize specifications as standard Special Provisions to get a feel for it before making it a standard specification. Darrell said they are going to take a much more active roll in the process. This will help in uniformity of enforcement and standardization of specifications.

Discussion points were:

- Barry asked how did the RCE Committee schedule compare to the Standards Committee schedule. Will items approved by the RCE be ready for the following Standards Committee meeting? Darrell said they would have to take that into consideration when they schedule their meetings. Barry said he was referring to the suspense to the Standards Section. Darrell said they would like to make the specification a special provision that goes into the special provision area for use on all applicable projects until they want to send it to Standards for approval.
- Darrell asked if that was reasonable. Comment indicated that is the way it should be.

- Mont asked that when 00725 gets close to ready could he or Rich Thorn get a copy for the AGC to review. Jim asked Mont if he was on Barry's email list for Standards Committee minutes and stuff. Barry said Mont as well as Rich was on the email list.
- Tim asked if there was a set timeframe for a specification to be used before coming to the Committee for approval. Comments indicated that it was up to the champion of that particular specification. Darrell suggested to Tim that anything coming through the RME group also go to the RCE Committee before going to Standards. Tim agreed.

10. Standard Specification 13554, Polymer Concrete Junction Box and Standard Drawing AT 7, Polymer Concrete Junction Box Details (Agenda Item 10) - Presented by Jason Richins and Richard Manser.

Richard presented an introduction to the item. He said the changes have come up from the grassroots, from the inspectors and the people who maintain the equipment out in the field. Richard said there have been a lot of problems with broken boxes and lids that get knocked off or stolen. This results in people stepping in the boxes, getting hurt. He pointed out that some of the boxes contain electrical equipment. The larger ones are fiber conduits. There is a safety hazard as well as the garbage that gets collected in the open boxes. The Maintenance people have to be very careful when removing the garbage. Richard said, in a nutshell this is what is driving the changes. He then introduced Jason Richins, a rotational engineering working in the ITS Division. He said Jason has been working on this for the last three months.

Richins explained that a couple of additional references for polymer concrete have been added to the specification in 1.3C and D. He said a Contractor suggested that "Precast" be added in 1.1A. The item should be "Furnish and Install Precast Polymer Concrete..." He said this is an addition that was not in the supplied draft. Richins said in 2.1F they would like to change "Provide pre-fabricated junction boxes" to "Provide Precast polymer concrete junction boxes."

Referring to 2.1A, Richins said the people in the field didn't know what a "special termination kit" was. They had never seen one out there. He contacted the junction box companies and was told the kit is used mainly for utilities where the holes are prefabricated. The kit is used to terminate those holes. Richins said the suggestion is to use grout as an option.

In 2.2D Richins said the reference to "traveled way" should be removed so the item matches a change later in the specification. In 2.2F he said they would like to provide an option for a prefabricated floor. The conduit previously came in the bottom of the box but they want it to come in the side now. He said there are problems with the wires sticking up from the bottom. The wires are getting caught in the lips of the box. When the lid is put on the fiber gets crushed. Coming in the side reduces the likelihood of this happening.

Richins said one Contractor was worried that twelve number 2's wouldn't fit inside of the box. Richins said their response was, if it is twelve number 2's they should go into a Type 3 or bigger box. He said a bigger box is needed for that many wires.

Discussion points were:

- Jason Davis asked if the requirement is to go into the side of the box, would the minimum coverage be maintained. Richins said that if there were too many conduits they would like to see the use of a bigger box. He said another problem is that there is not a lot of room to work in some of the boxes.
- Jason said the reason he was bringing this up was because out in the field they are hitting the conduits on a consistent basis. He said the main reason he has heard for this is that we don't have the 18 inches of cover that the other utilities have. He asked if we are basically saying it is fine not to have the 18 inches of cover. Richard said that is just around the box and that Jason was absolutely correct in that we have seen construction out there where we didn't have the 18 inches of cover where we should be having five feet. Richard said our current Standards are addressing that everywhere except around the box. When you come to a box you have to come up to go into the box. He added that there would still be some small areas around the junction boxes where you don't have that full cover. Richins said in the dirt around the box the concrete collar would protect it. Jason said his main concern was someone coming from the road up behind the curb to put in a sprinkler system for example. Richard asked if a note or something could be added to help address that. Richins didn't think so.
- Moving on to 2.2H, Richins said they would like to see the logos imprinted into the lids so it is known what the boxes are. He said most of the suppliers already have the lids mark and we would just have to get these lids. The discussion continued about the different labels and the various meanings. Richard asked Jason Davis if he had any recommendation for the wording of the specification on the meaning of the labels. He said he didn't, adding that he didn't see any difference in the two listed options. Jason asked Richard about the intent of the wording and what they were trying to convey to their people. Is it so they don't reach into the box without turning everything off? Richard said that is accurate. He said they want to differentiate high voltage from low voltage. A question was asked if this requirement would also be on the drawings. Richard didn't think so with regard to the Standard Drawings, but it could be on the plans. Jason said it should be in the Standard Drawings, adding that he didn't want to see any confusion as to what is in a box, for example, traffic signal with something hot in it. Richins asked if reversing the order of the items, putting electric first, would help. Dave said one way to deal with it is to put what you want in the plan set. Richard said at some point the designer has to make that call. Is it an electrical box or is it a communications box? Richard said the boxes are separate and can't be mixed.

- Jim asked what does it get us by having the labels on the boxes. Richard said there could be several boxes in the same location, adding that it saves time getting into the correct one. It just clearly marks what is out there.
- In response to a question Richard said it is the plastic boxes that we are trying to get rid of because they do not hold up well in traffic.
- Richins said that the reference to plastic is still on the drawing for use in areas where plastic will still work. He said they would like to see not using plastic at all. Comments indicated that the note about plastic should be removed. Richins said there are situations where Traffic and Safety might use plastic boxes. He asked if we eliminate the note would that eliminate the Standard Specification. Comments indicated that if the Standard Specification were eliminated there is still the option of a Special Provision.
- Mont asked if there would be an inventory problem if you have 500 plastic boxes. Richins said in talking to the technicians they would have to keep some plastic boxes for use if current plastic boxes get hit.
- Richins said that the 480-volt box listed in 2.2H3 is being eliminated. He said there is no differentiation up to 600 volts.
- In 3.1B3, Richins said they would like to add the requirement as a reminder. He said it is listed in the current conduit specification. Richins said that 3.1I was added to show the conduit coming into the box from the side, not bottom, as discussed earlier.
- Barry said the changes to the specification needed to be in active voice.

Moving on to drawing AT 7, Richins pointed out that the Traveled Way location was removed. He pointed out that the Type 2 box was increased in size because it wasn't big enough for technicians to reach into to do all the wiring. This will raise the cost about \$150/box.

Discussion points were:

- In response to a comment about the elimination of the box in the Traveled Way, Richins said no one makes a polymer concrete box for use in that area. He said a manhole or vault would have to be used. He mentioned one supplier who makes reinforced concrete boxes but no one makes boxes to meet the HS20 load requirements for polymer concrete. Richard said that is what we want anyway, referring to the reinforced concrete boxes.
- Richins said Notes 2 and 3 were added. Barry pointed out that the cross reference in Note 2 was incorrect. It should be Part 2.2H not G.

- In response to comments Richins asked if he should label the load rating for the cover enclosure to be polymer concrete meeting HS20 load. Further comments were not clear. Richins said the current lids can meet the load, but it is the repeated loads they can't meet. He said that part might need to be worded differently.
- Richins concluded his presentation by stating that they did get a lot of participation in the process.

Motion: Jason Davis made a motion to approve Standard Specification 13554 and Standard Drawing AT 7 as discussed. Seconded by Dave Nazare. Pass unanimously.

Following discussion a Priority 3 was set for this item. An updated specification and drawing need to be provided to the Standards Section as soon as possible.

11. Review of Assignment/Action Log (Agenda Item 11)

Discussion points were:

- Item 1, 800 Series drawings: The drawings are being reviewed and updated. The drawings will be brought back to the next meeting in June.
- Item 2, 09972 (Painting for Structural Steel), 09991 (Cleaning and Repainting Structural Steel), and 09992 (Cleaning and Overcoating Structural Steel): No change. The target date is still the August meeting.
- Item 3a, Incentive payments for smoothness, 01452 (Profilograph and Smoothness): The change is being evaluated. The specification will be brought back to the next meeting in June.
- Item 3b, Standard Specification 01452 (Profilograph and Smoothness): The target is still the end of the construction season. Two test projects are in progress.
- Item 4, 02962 (In-Place Code Recycled Asphaltic Base): Tim said something should be ready for the June meeting.
- Item 5, Rumble Strips: Bob said the Traffic Engineering Panel (TEP) was not comfortable in making it a Standard Drawing. They plan to have a draft policy ready by June. This will be inclusive of all rumble strips.
- Item 6, 02762 (Plowable Pavement Markers): Bob said the last TEP discussed this item. Their recommendation is to retain the Standard Drawing as a reference. The markers will only be considered in gore areas and special cases. Bob said in those cases some sort of Standard Drawing would be needed. The current Standard covers this. Bob said the Standards Committee had been looking at the elimination of the Standard. He said no one on the TEP is recommending the

elimination. Jason asked if it is being used that infrequently, is a Standard Drawing needed. Bob said the TEP could make that decision and if done Traffic and Safety could maintain a copy of the drawing for use as a guideline in their manual. Comments indicated there might be a lot of Standard Drawings that are used infrequently. Bob said he didn't think there is any issue, per say. Jason said he didn't see any gain by taking it out of the Standard Drawings or by leaving it in. Bob said from a TEP standpoint the only place it would ever be recommended is in the gore area where there are site problems. Bob recommended the item be closed.

- Item 7, 00727 (Control of Work): Darrell said based on their new charge this specification along with others is being reviewed. The new target date is August.
- Item 8, Black Paint issue: Bob said this has been assigned to a task group. The next TEP meeting is July. The new target date is the August meeting.
- Item 9, Numbering system and specification format: A web page is being developed. The target date is June.
- Item 10, Design-Build Specification: Darrell said he was confused about the need for all Design-Build (DB) specifications being included in the project book. Dave asked if these would be modifying our Standard Specifications because the Standards outline a different responsibility. Darrell said okay, adding that the DB specifications would be stand-alone specifications. Dave agreed. Darrell asked Barry if the set of DB specifications could be posted. Barry said the format would need to be looked at. Darrell added that the format and wording on the ones he has seen need a lot of work. Jim asked Darrell is his suggestion is to remove this item from the log. Darrell said yes. Barry asked if the DB specifications needed to meet the same publication requirements as the Standard Specifications. Darrell said he would work with Bob Dyer to get the specifications in line. Barry asked that they be included so the format meets all requirements. The item was closed.
- Item 11, 00725 (Scope of Work): Jim asked if this would be the same August target. Darrell agreed.
- Item 12, 01284 (Prompt Payment): Darrell said this one is still being worked on. The target date is also August.
- Item 13, 02705 (Pavement Sawing): Approved earlier in the meeting. Closed.
- Item 14, Painted Cattle Guard: Bob said the TEP hasn't look at it. The new target date is August.
- Item 15, Standard Drawing GW 10 (Delineation Hardware): Bob said this should be ready for the June meeting. Jim commented about Research looking into the difference between the UDOT Standard and MUTCD.

- Item 16, Standards Committee Policy 08A5-1, Submittal Sheet Update: Barry said the submittal sheet was updated with the recommended changes. He said more updates to the form were needed following this meeting. Barry asked if this needed to be carried on the action log. The answer was no. Item closed.
 - Item 17, Standard Specification 01574, Dust Control: Barry said he was advised they weren't ready. Darrell thought it was done, adding that they will use it as a special provision. Item close.
 - Item 18, Lump Sum bid items: Close prior to the meeting.
 - Item 19, Standard Specification 00555, Prosecution and Progress: Darrell said this one is part of their review. The target date is August.
12. Meeting Improvements (on-going agenda item) (Agenda Item 12)
- None
13. Other Business

Bob commented about the PDF format being used for the minutes, agenda, and agenda items. He said he liked the new format. Others concurred.

Farrell commented about the recent Local Governments meeting in St. George where the need for AASHTO Standards was brought up. Farrell said UDOT has adopted most of the AASHTO Green Book but has not adopted AASHTO's *Guidelines for Geometric Design of Very Low-Volume Local Roads ADT (≤ 400)*. He said Jim had suggested bringing this up and maybe putting together a team to look at these Guidelines to see if this is something we want to adopt. Jim suggested that George (Thompson) would be some help. He also suggested using some people from the current highway group (not sure what Jim said about this group). Jim asked Barry to put this on the action log. Sterling said he would hate to see us establishing standards for the local people to use. They should be setting their own standards. Jim said our Stewardship Agreement requires AASHTO Standards. Jim said we could pass these Guidelines and let them use those standards instead of those in the Green Book. Sterling said he was looking beyond design and construction. Sterling asked if we were talking about the standard of maintenance. The response was no. Jim said we are talking just about the design standards. Comments were also made about the use of APWA standards on local roads. Jim said the assignment is for Jason to deal with the two issues.

Adjourned.

The next regular meeting of the Standards Committee has been scheduled for Thursday, June 26, 2003, at 8:00 a.m., in the 1st floor conference room of the Rampton Complex.

Approval of Minutes: The foregoing minutes were approved at a meeting of the Standards Committee held _____, 2003.

Assignment/Action Item Log (Updated April 24, 2003)

Date Initiated/Updated	Item #	Action	Assignments	Status	Target Date
June 27, 2002	1	Team to review Series 800 Standards prior to presentation to the Standards Committee	Research, Safety, Farrell, Clair, and Jason	Open	June 2003 meeting
August 29, 2002		Drawings that were not deleted to be looked at for modification and consolidation. Notes from deleted drawings to be considered for inclusion in remaining drawings or elsewhere.	Robert and Jason		
		Structures to look at 815-7 (Structure Geometrics Design Standards) and 815-8 (Railroad Clearance at Highway Overpass Structures).	Dave and Boyd		
October 31, 2002		Drawings to be completed for the December 19 meeting.			
December 19, 2002 February 27, 2003		Drawings still being worked. Task group to coordinate and update the drawings as required.	John Leonard		
April 24, 2003		Drawings still being reviewed.			

Date Initiated/Updated	Item #	Action	Assignments	Status	Target Date
June 27, 2002 October 31, 2002 December 19, 2002 February 27, 2003 April 24, 2003	2	Review 09972 (Painting for Structural Steel), 09991 (Cleaning and Repainting Structural Steel), and 09992 (Cleaning and Overcoating Structural Steel) to clean up the specifications. Structures reviewing with Materials for proposed changes. The item will be shown with an August 2003 date. Structures to send letter to paint contractors. No change in status.	Structures Boyd Wheeler Bill Lawrence Boyd Wheeler	Open	August 2003 meeting
June 27, 2002 October 31, 2002 December 19, 2002 February 27, 2003 April 24, 2003	3a	Incentive payment for smoothness should be looked at. Standard Specification 01452 (Profilograph and Smoothness). Materials working updating the specification based on special provision inputs. Still on track The change is being evaluated	Darrell and Howard Howard Anderson	Open	June 2003 meeting
December 19, 2002 February 27, 2003 April 24, 2003	3b	Standard Specification 01452 (Profilograph and Smoothness) Materials working on updating specification for Zero Blanking Band and related information. No change	Howard Anderson	Open	End of Construction Season

Date Initiated/Updated	Item #	Action	Assignments	Status	Target Date
June 27, 2002 October 31, 2002 December 19, 2002 February 27, 2003 April 24, 2003	4	Review specification so that all the issues are addressed. Standard Specification 02962 (In-Place Cold Recycled Asphaltic Base). Still in-progress	Darrell, Tim, and Howard Tim Biel, Howard Anderson, Larry Gay	Open	June 2003 meeting
June 27, 2002 October 31, 2002 December 19, 2002 February 27, 2003 April 24, 2003	5	Standard Drawing PV 8 (Rumble Strip) Process being reviewed. Research looking into testing. A policy is to be developed over the next several months. No change	Darrell to assign someone from Construction. Richard Miller from Maintenance. Fred Doebling. Betty Purdie. Robert Hull to head the group. Robert Hull Stan Burns Robert Hull Stan Burns	Open	June 2003 meeting
August 29, 2002 December 19, 2002 February 27, 2003 April 24, 2003	6	00727 (Control of Work), wording of 1.6B & C (Contractor Cooperation) and 1.8 (Cooperation Between Contractors). Construction working with AGC on inputs Update target date. New review procedure established by Construction	Hugh Hugh, Mont Darrell	Open	August 2003 meeting

Date Initiated/Updated	Item #	Action	Assignments	Status	Target Date
Revisited from October 2001 and December 2001 Standards Meetings	7	Black Paint issue on lane striping. Review by Traffic Engineering Panel	Robert	Open	August 2003 meeting
October 31, 2002		Item to the Traffic Engineering Panel.	Robert		
December 19, 2002		Traffic Engineering Panel and Task Group working on issue.	Robert		
February 27, 2003		Update target date.	Robert		
April 24, 2003	8	Traffic Engineering Panel to discuss in July		Open	June 2003 meeting
October 31, 2002		The numbering system for specifications to be looked at as well as format. Questionnaire in the general packets for Engineering Conference.	Farrell Wright		
December 19, 2002 February 27, 2003 April 24, 2003		Standards to put together an on-line survey to gather more information on Standard Specification format and numbering and Measurement & Payment Document issues	Farrell Wright Barry Axelrod		
October 31, 2002	9	00725 (Scope of Work). Construction to discuss wording with AGC and Region Engineers	Darrell Giannonatti	Open	August 2003 meeting
December 19, 2002		Obtain inputs from Construction Engineers	Darrell Giannonatti		
April 24, 2003		Being reviewed based on new Construction procedure.			
December 19, 2002 February 27, 2003	10	01284 (Prompt Payment) discussion delayed for further review by AGC.	Chuck Larson	Open	August 2003 meeting
April 24, 2003		Being reviewed by Construction.	Darrell Giannonatti		

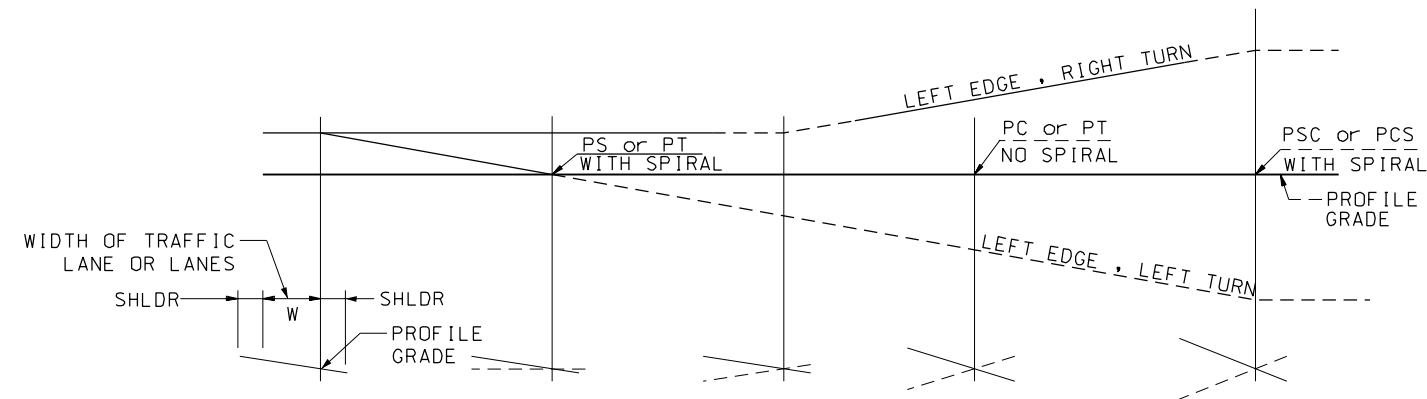
Date Initiated/Updated	Item #	Action	Assignments	Status	Target Date
December 19, 2003	11	Painted Cattle Guard: With assistance from Research Division, Traffic and Safety to make recommendation.	Glenn Schulte John Leonard	Open	August 2003 meeting
February 27, 2003		No status.			
April 24, 2003		Traffic Engineering Panel to review			
February 27, 2003	12	Standard Drawing GW 10 (Delineation Hardware). Research to look into the use of delineators and the impact on traffic.	Research Sterling Davis	Open	June 2003 meeting
		Research also to look into standards common to rural states in relation to the MUTCD.			
		Coordinate changes within the Maintenance Division.			
April 24, 2003		No change			
February 27, 2003	13	Standard Specification 00555, Prosecution and Progress. Postponed. Present at next meeting	Jeff Saddler Bob Dyer Larry Myers	Open	August 2003 meeting
April 24, 2003		Being reviewed based on new Construction procedure.			
April 24, 2003	14	BA Series Standard Drawings to be reviewed for standardization before publication	Farrell Wright	Open	Not applicable
April 24, 2003	15	Team to review AASHTO's <i>Guidelines for Geometric Design of Very Low-Volume Local Roads ADT (≤ 400)</i> for approval for use as well as APWA Standards.	Jason Davis	Open	June 2003 meeting

Closed Items From Last Meeting (April 24, 2003)					
Date Initiated/Updated	Prior Item #	Action	Assignments	Status	Target Date
August 29, 2002	6	02762 (Plowable Pavement Markers) to the Traffic Engineering Panel and make any recommended changes to the Standard Specification and Drawing.	Robert	Closed	Closed
		Research continue looking for better and more improved devices.	Research		
October 31, 2002		Follow up with the TEP and present recommendation.	Robert		
December 19, 2002		TEP having task group review and report by January.	Robert		
February 27, 2003		No change			
April 24, 2003		TEP review complete. Maintain as Standard.			
October 31, 2002	10	Design-Build specifications to be looked at by the Innovation Contraction section (Robert Dyer). Reconsider the need for all specifications to be included in the project books.	Robert Dyer	Closed	Closed
December 19, 2002		Specifications still being reviewed. Target date to be set.	Robert Dyer Jim McMinimee		
February 27, 2003		Target date set.	Robert Dyer		
April 24, 2003		Construction to review specifications			

December 19, 2002	13	Contractor inputs on the process and present the recommendations for 02222 (Site Demolition - Pavement) and 02705 (Pavement Saving)	Ed Rock	Closed	Closed
February 27, 2003		Item back for further review and update based on meeting comments and recommendations.	Ed Rock		
		Standards to determine how to handle a section title change.	Standards		
April 24, 2003		Approved			
February 27, 2003	16	Standards Committee Policy 08A5-1, Submittal Sheet Update. Submittal Sheet to be updated with the addition of Preconstruction and Programming Costs.	Standards	Closed	Closed
April 24, 2003		Complete. No need to track changes.			
February 27, 2003	17	Standard Specification 01574, Dust Control and Soil Stabilizing. Update based on current discussion.	Lynn Bernhard Barry Sharp	Closed	Closed
April 24, 2003		Will be covered by Special Provision			
February 27, 2003	18	Lump Sum bid item tables. Farrell to update tables, coordinate with Darrell, and publish updates.	Farrell Wright	Complete	Complete

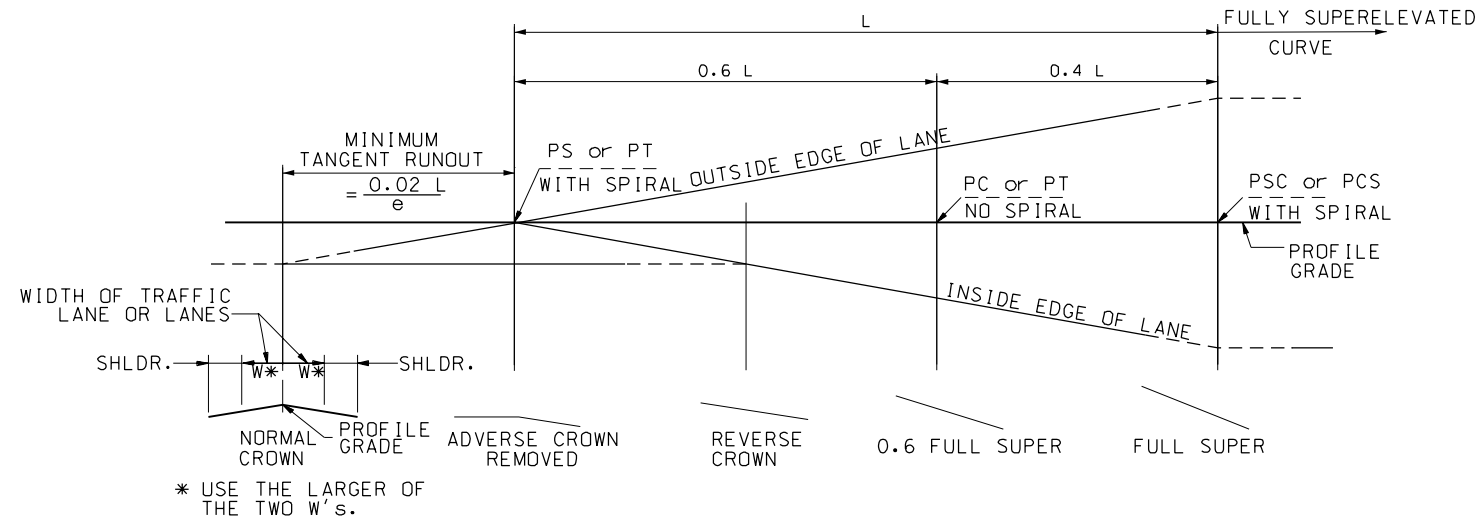
Standards Committee Agenda Items Section

Submittal Sheets, Standard Specification Drafts, Standard Drawing Drafts, and other supporting data for the April 24, 2003 Standards Committee meeting follows.



PROFILE - SINGLE CROWN ROAD

(FOR ONE-DIRECTION ROADWAY CROSS SECTION ONLY)



PROFILE - DOUBLE CROWN ROAD

LEGEND:

- PS = POINT OF SPIRAL
- PT = POINT OF TANGENCY
- PC = POINT OF CURVATURE
- PSC = POINT OF SPIRAL TO CURVE
- PCS = POINT OF CURVE TO SPIRAL
- e = SUPERELEVATION - %
- W = CROSS SECTIONAL DISTANCE IN FEET FROM AXIS OF ROTATION (NORMALLY THE CONTROL LINE) TO THE OUTER EDGE OF THE TRAFFIC LANE OR LANES.
- L = MINIMUM SUPERELEVATION RUNOFF LENGTH

NOTES:

1. USE CURRENT EDITION OF AASHTO A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR DESIGN OF ROADWAY ELEMENTS.
2. USE CURRENT EDITION OF AASHTO ROADSIDE DESIGN GUIDE FOR CLEAR ZONE REQUIREMENTS.
3. SPIRALS WITH CURVES ARE NOT REQUIRED BUT MAY BE DESIRABLE UNDER HIGH SPEEDS AND SHARP CURVES. WHEN A SPIRAL IS USED, THE LENGTH OF SPIRAL IS EQUAL TO MINIMUM SUPERELEVATION RUNOFF LENGTHS.
4. SUPERELEVATE SURFACED SHOULDERS AT SAME RATE AS TRAFFIC LANES.
5. PLACE THE FOLLOWING INFORMATION ON THE CONSTRUCTION PLANS.
RATE OF SUPERELEVATION
BEGIN AND END OF TANGENT RUNOUT
BEGIN AND END OF SUPERELEVATION RUNOFF IF SPIRALS ARE NOT USED

REVISIONS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL

CHAIRMAN, STANDARDS COMMITTEE
APPROVED

DEPUTY DIRECTOR

(ENGLISH)
SUPERELEVATION
AND
WIDENING

STD. DWG. NO.
805-1

STANDARD DRAWING TITLE

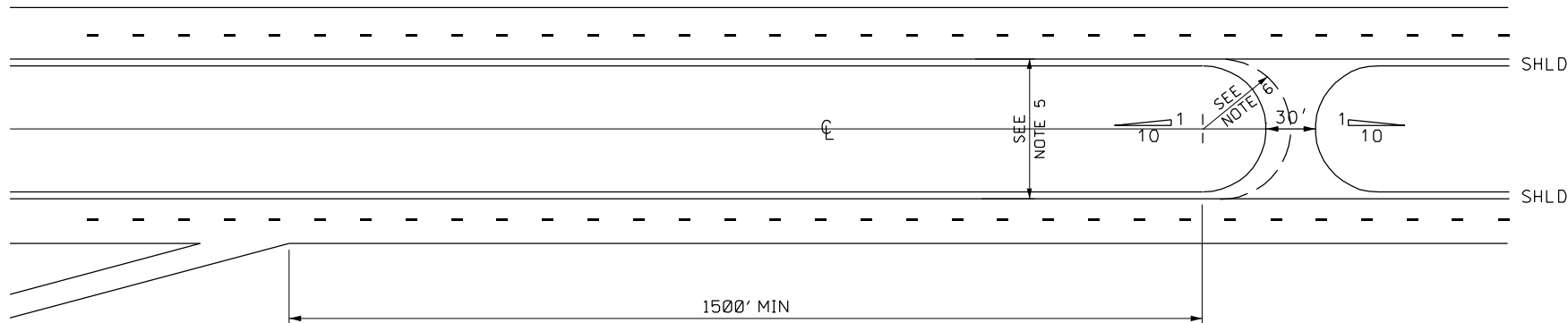
REMARKS

APPR.

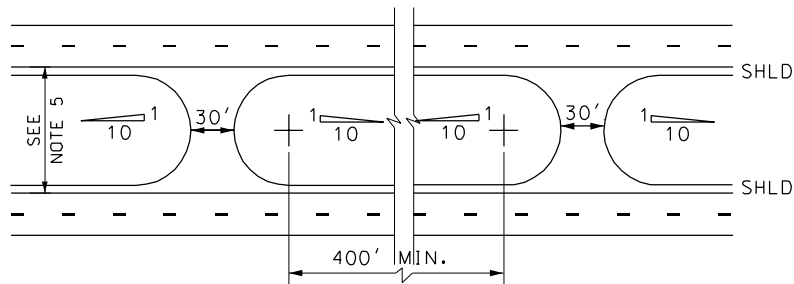
DATE

NO.

DATE



SINGLE CROSSOVER



DOUBLE CROSSOVER

SEE NOTE 13

NOTES:

1. USE CURRENT EDITION OF AASHTO A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR DESIGN OF ROADWAY ELEMENTS
2. USE CURRENT EDITION OF AASHTO ROADSIDE DESIGN GUIDE FOR CLEAR ZONE REQUIREMENTS
3. PLACE TURN-A-ROUNDS A MINIMUM OF 1500 FEET FROM RAMPS
4. SPACE TURN-A-ROUNDS A MINIMUM OF 2½ MILES APART
5. USE CROSSOVERS WHERE MEDIAN WIDTH IS 36 FEET OR GREATER. REGION TRAFFIC ENGINEER APPROVAL REQUIRED FOR MEDIAN WIDTHS LESS THAN 36 FEET.
6. USE ½ MEDIAN WIDTH AS TURN-A-ROUND RADIUS.
7. USE MINIMUM 10:1 SLOPE FOR APPROACHES TO TURN-A-ROUND.
8. PROVIDE MINIMUM SIGHT DISTANCE FOR TURN-A-ROUND LOCATIONS.
9. PLACE 'NO U-TURN-EXCEPT AUTHORIZED VEHICLES' SIGNING AND DELINEATION AT EACH TURN-A-ROUND AS PER STD DWG ST 2.
10. CONSTRUCT THE MEDIAN CROSSOVER TO APPEAR INCONSPICUOUS BY FLATTENING OF SLOPES AND USING ROAD BASE OR SIMILAR MATERIAL FOR SURFACING.
11. PROVIDE MAINTENANCE TURN-A-ROUNDS AT LOCATIONS WHERE SNOW AND ICE REMOVAL WOULD BE SIGNIFICANTLY FACILITATED. LOCATIONS TO BE DETERMINED BY THE REGION TRAFFIC ENGINEER.
12. PROVIDE EMERGENCY VEHICLE TURN-A-ROUNDS OF THE TYPES SHOWN ON PLANS. LOCATIONS TO BE DETERMINED BY THE REGION TRAFFIC ENGINEER.
13. INSTALL DOUBLE CROSSOVERS AT MAINTENANCE STATION AREA BOUNDARIES. LOCATIONS TO BE DETERMINED BY THE REGION TRAFFIC ENGINEER.

REVISIONS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL

CHAIRMAN STANDARDS COMMITTEE
APPROVED

DEPUTY DIRECTOR

(ENGLISH)

FREEWAY
TURN-A-ROUNDS

STANDARD DRAWING TITLE

STD. DWG. NO.
805-3

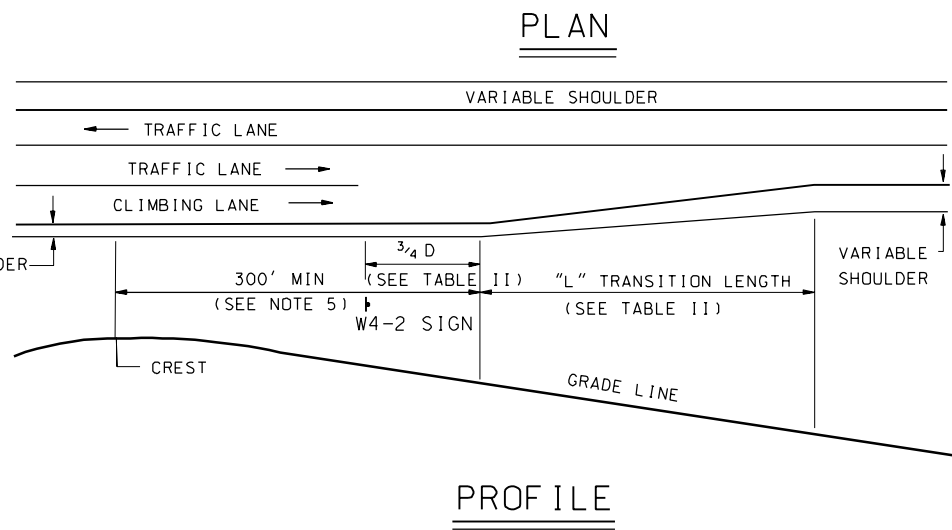
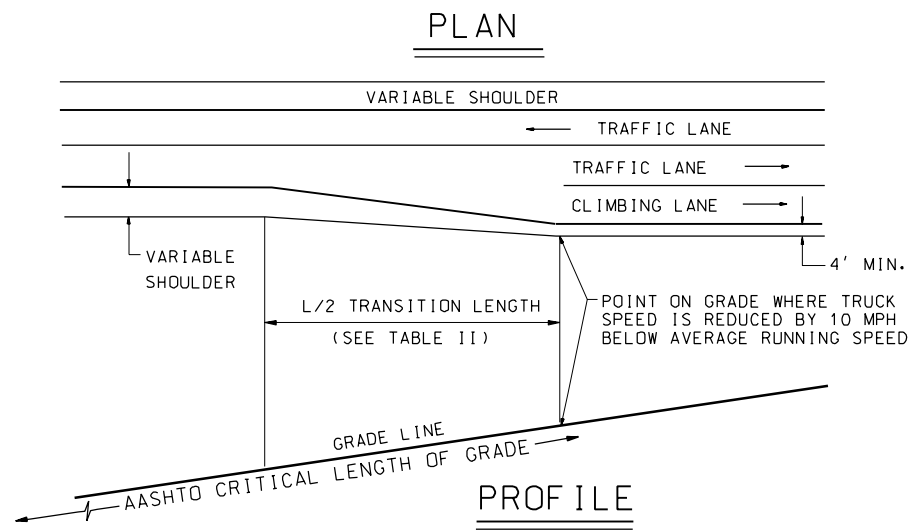


TABLE I
THE FOLLOWING THREE CRITERIA, REFLECTING ECONOMIC CONSIDERATIONS, SHOULD BE SATISFIED TO JUSTIFY A CLIMBING LANE:
1. UPGRADE TRAFFIC FLOW RATE IN EXCESS OF 200 VEHICLES PER HOUR
2. UPGRADE TRUCK FLOW RATE IN EXCESS OF 20 VEHICLES PER HOUR
3. ONE OF THE FOLLOWING CONDITIONS EXISTS:
A. A 10 MPH OR GREATER SPEED REDUCTION IS EXPECTED FOR A TYPICAL HEAVY TRUCK.
B. LEVEL OF SERVICE E OR F EXISTS ON THE GRADE
C. A REDUCTION OF TWO OR MORE LEVELS OF SERVICE IS EXPERIENCED WHEN MOVING FROM THE APPROACH SEGMENT TO THE GRADE

TABLE II			
DESIGN SPEED MPH	L* FT	L/2* FT	D
25	125	65	250
30	180	90	325
35	245	125	400
40	320	160	475
45	540	270	550
50	600	300	625
55	660	330	700
60	720	360	775
65	780	390	850
70	840	420	925

* BASED ON 12' TRAFFIC LANE WIDTH
"D" DISTANCE MAY PLACE W4-2 SIGN PRIOR TO CREST

NOTES:

- USE THE CURRENT EDITION OF AASHTO A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR DESIGN OF ROADWAY ELEMENTS.
- USE THE CURRENT EDITION OF AASHTO ROADSIDE DESIGN GUIDE FOR CLEAR ZONE REQUIREMENTS.
- CALCULATE CLEAR ZONE FROM SHOULDER LINE OF CLIMBING LANE.
- USE CLIMBING LANE ON 2 LANE ROADWAY WHEN CRITERIA OF TABLE I IS MET.
- EXTEND CLIMBING LANE A MINIMUM OF 300 FEET OVER CREST, PROVIDED MINIMUM PASSING SIGHT DISTANCE IS AVAILABLE. EXTEND THE CLIMBING LANE TO THE POINT WHERE MINIMUM PASSING SIGHT DISTANCE BECOMES AVAILABLE IF PASSING SIGHT DISTANCE IS RESTRICTED DUE TO HORIZONTAL OR VERTICAL ALIGNMENT, PROVIDED TRUCK SPEED IS LESS THAN 10 MPH BELOW AVERAGE RUNNING SPEED AT THAT POINT. OTHERWISE, EXTEND CLIMBING LANE TO THE POINT WHERE MINIMUM TRUCK SPEED IS EXCEEDED.
- USE CLIMBING LANE ON MULTI-LANE ROADWAY WHEN TRUCK SPEED IS REDUCED 10 MPH BELOW AVERAGE RUNNING SPEED AND, AFTER ASSIGNING ALL PASSENGER VEHICLES TO THE INNER LANE(S), THE VOLUME EXCEEDS THE DESIGN CAPACITY OF THE REMAINING LANE(S).
- USE CONTINUOUS CLIMBING LANES WHEN TWO OR MORE CLIMBING LANE SECTIONS ARE JUSTIFIED IN CLOSE PROXIMITY, AND THE GAP BETWEEN THE SECTIONS WOULD BE LESS THAN 1/2 MILE IN LENGTH.
- INITIALLY PROVIDE A 4-LANE SECTION WHEN THE VOLUME OF THE PROPOSED HIGHWAY APPROACHES THE VALUE WHICH WOULD WARRANT A 4-LANE HIGHWAY SECTION, AND SUBSEQUENT IMPROVEMENT TO 4-LANE HIGHWAY IS ANTICIPATED SHORTLY AFTER THE INITIAL DESIGN YEAR.
- OMIT CLIMBING LANES OF LESS THAN 1000'.
- PROVIDE A MINIMUM OF 1000' PASSING LANE FOR EACH 1 MILE SECTION WHERE THERE IS NO PASSING SIGHT DISTANCE AND DHV EXCEEDS 80.

REVISIONS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL

CHAIRMAN STANDARDS COMMITTEE
APPROVED

DEPUTY DIRECTOR

REMARKS

STANDARD DRAWING TITLE

STD. DWG. NO.
810-5A

(ENGLISH)
CLIMBING LANES



REQUIRED WHEN FILL TO BE PLACED
ON ANY SLOPE STEEPER THAN 4:1



SLOPE ROUNDING REQUIRED FOR THE SIDES OF
CUT SLOPES AS WELL TOP OF CUT SLOPES.

NOTES:

1. USE THE CURRENT EDITION OF AASHTO A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR DESIGN OF ROADWAY ELEMENTS.
2. USE THE CURRENT EDITION OF AASHTO ROADSIDE DESIGN GUIDE FOR CLEAR ZONE REQUIREMENTS. CLEAR ZONE MAY EXTEND INTO CUT OR FILL SLOPES.
3. STANDARDS SHOWN ARE RECOMMENDED VALUES. EXCEED STANDARDS IF CONDITIONS PERMIT.
4. TRANSITION FROM FLAT TO STEEPER CUT AND FILL SLOPES IN SUFFICIENT DISTANCE TO PROVIDE A NATURAL PLEASING APPEARANCE.
5. INSTALL SURFACE DITCH WHEN SURFACE DRAINAGE IS TOWARDS CUT.

REVISIONS					
NO.	DATE	APPR.	REMARKS		

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL	DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED	DATE
DEPUTY DIRECTOR	DATE

(ENGLISH)

GEOMETRIC DESIGN
FOR SLOPES
AND CUT DITCHES

STANDARD DRAWING TITLE

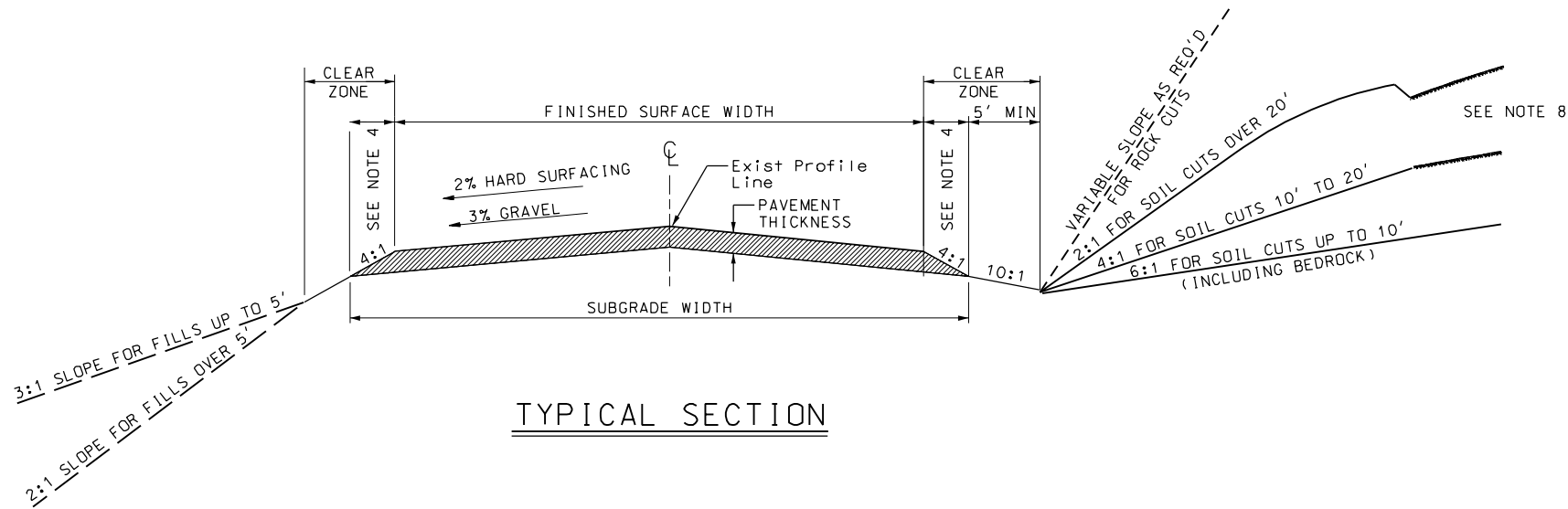
STD. DWG. NO.
815-1



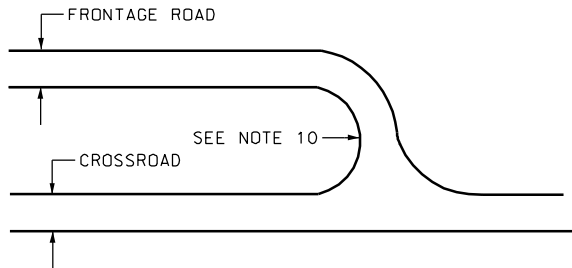
1. USE CURRENT EDITION OF THE AASHTO A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR DESIGN OF ROADWAY ELEMENTS.
2. USE CURRENT EDITION OF THE AASHTO ROADSIDE DESIGN GUIDE FOR CLEAR ZONE REQUIREMENTS. CLEAR ZONE MAY INCLUDE CUT OR FILL SLOPES.
3. STANDARDS SHOWN ARE RECOMMENDED VALUES. EXCEED STANDARDS IF CONDITIONS PERMIT.
4. MAINTAIN CONSTANT WIDTH TO THE NEAREST 1/2 FT. EVEN UNDER CONDITIONS OF MAXIMUM SUPERELEVATION PROVIDING A CONSTANT SLOPE OR FLATTEN IN A NORMAL SECTION WITH A 2 PERCENT SLOPE.
5. PROVIDE BACKSLOPE ROUNDING FOR ALL CUTS STEEPER THAN 4:1 AS PER ROUNDING DETAIL, STD DWG DD-XX (old 815-1).
6. TRANSITION FROM FLAT TO STEEPER CUT AND FILL SLOPES IN SUFFICIENT DISTANCE TO PROVIDE A NATURAL PLEASING APPEARANCE.
7. PAVEMENT THICKNESS CONSISTS OF UTBC AND HARD SURFACING ONLY.
8. INSTALL SURFACE DITCH WHEN SURFACE DRAINAGE IS TOWARDS CUT
9. SEE STD DWG DD-XXX (old 815-1A) FOR TYPICAL DETAILS FOR SECTION ON CURVE AND SECTION ON TANGENT. SEE STD DWG DD-XX (old 815-1) FOR TYPICAL SECTIONS ON DITCH FLARING AND BENCHED SLOPE.
10. USE A MINIMUM 0.3 PERCENT PROFILE GRADE THROUGHOUT CUT OR CURBED SECTIONS. LEVEL GRADES PERMITTED ON FILL SECTIONS.



(ENGLISH) RURAL TWO LANE HIGHWAYS	STD. DWG. NO. 815-3A
STANDARD DRAWING TITLE	



TYPICAL SECTION



INTERSECTION OF
FRONTAGE ROAD AND CROSSROAD

NOTES:

- USE THE CURRENT EDITION OF AASHTO A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR DESIGN OF ROADWAY ELEMENTS.
- USE THE CURRENT EDITION OF AASHTO ROADSIDE DESIGN GUIDE FOR CLEAR ZONE REQUIREMENTS. CLEAR ZONE MAY INCLUDE CUT AND FILL SLOPES.
- STANDARDS SHOWN ARE RECOMMENDED VALUES. EXCEED STANDARDS IF CONDITIONS PERMIT.
- MAINTAIN A CONSTANT WIDTH TO THE NEAREST 1/2 FOOT EVEN UNDER CONDITIONS OF SUPERELEVATION PROVIDING A SLOPE OF 4:1 OR FLATTER IN A NORMAL SECTION WITH A 2 PERCENT OR 3 PERCENT SLOPE.
- PROVIDE BACKSLOPE ROUNDING FOR ALL CUTS STEEPER THAN 4:1 AS PER ROUNDING DETAIL, STD DWG DD-XX (OLD 815-1).
- TRANSITION FROM FLAT TO STEEPER CUT AND FILL SLOPES IN SUFFICIENT DISTANCE TO PROVIDE A NATURAL PLEASING APPEARANCE.
- PAVEMENT THICKNESS CONSISTS OF GRAVEL OR UTBC AND HARD SURFACING ONLY.
- INSTALL SURFACE DITCH WHEN SURFACE DRAINAGE IS TOWARDS CUT.
- SEE STD DWG DD-XX (OLD 815-1A) FOR TYPICAL DETAILS FOR SECTION ON CURVE AND SECTION ON TANGENT. SEE STD DWG DD-XX (OLD 815-1) FOR TYPICAL SECTION ON DITCH FLARING AND BENCHED SLOPE.
- DESIGN FRONTAGE ROAD WITH A MINIMUM TURNING RADIUS OF 60 FEET AT INTERSECTIONS. A TURNING RADIUS OF 50 FEET MAY BE USED WHERE NO REGULAR LARGE VEHICLE MOVEMENTS ARE EXPECTED.

REVISIONS

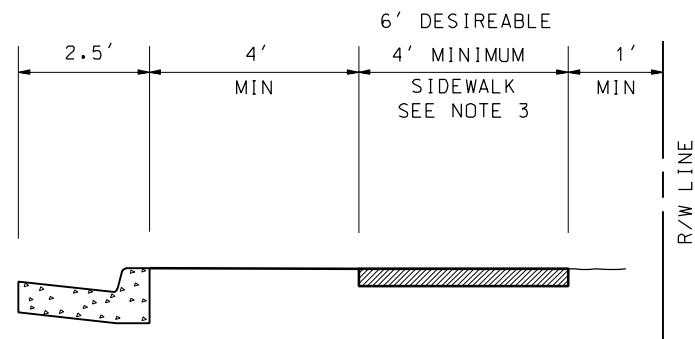
NO.	DATE	APPR.	REMARKS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

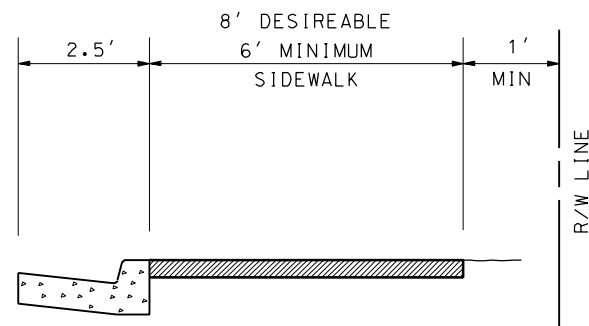
RECOMMENDED FOR APPROVAL
CHAIRMAN STANDARDS COMMITTEE
APPROVED
DEPUTY DIRECTOR

(ENGLISH)
FRONTAGE AND ACCESS
ROADS (UNDER 50 ADT)

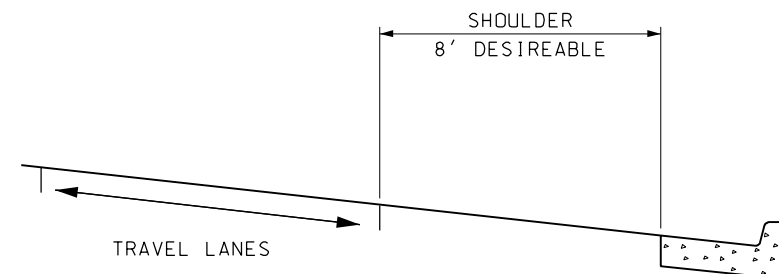
STD. DWG. NO.
815-4



PARK STRIP



NO PARK STRIP



URBAN ROADWAY SHOULDERS

NOTES:

1. USE CURRENT EDITION OF THE AASHTO A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR DESIGN OF ROADWAY ELEMENTS
2. USE CURRENT EDITION OF THE AASHTO ROADSIDE DESIGN GUIDE FOR CLEAR ZONE REQUIREMENTS
3. PROVIDE A 60 INCH x 60 INCH PASSING AREA ON SIDEWALKS OF LESS THAN 60 INCH WHEN THERE IS NOT A HARD SURFACE PASSING AREA OF 60 INCH MINIMUM WIDTH IN A 200 FOOT SEGMENT

REVISIONS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL

CHAIRMAN STANDARDS COMMITTEE
APPROVED

DEPUTY DIRECTOR

DATE

DATE

APPR.

REMARKS

(ENGLISH)

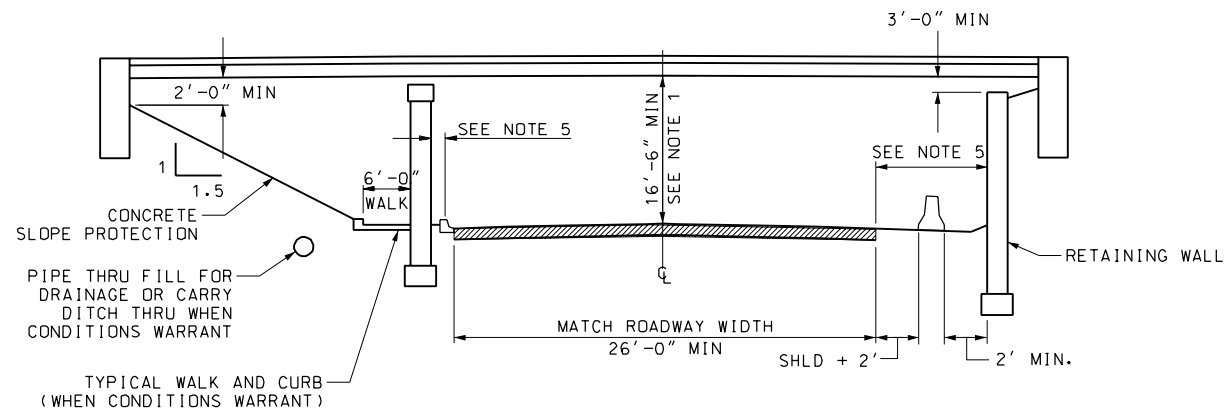
SIDEWALKS AND
SHOULDERS ON
URBAN ROADWAYS

STANDARD DRAWING TITLE

STD. DWG. NO.

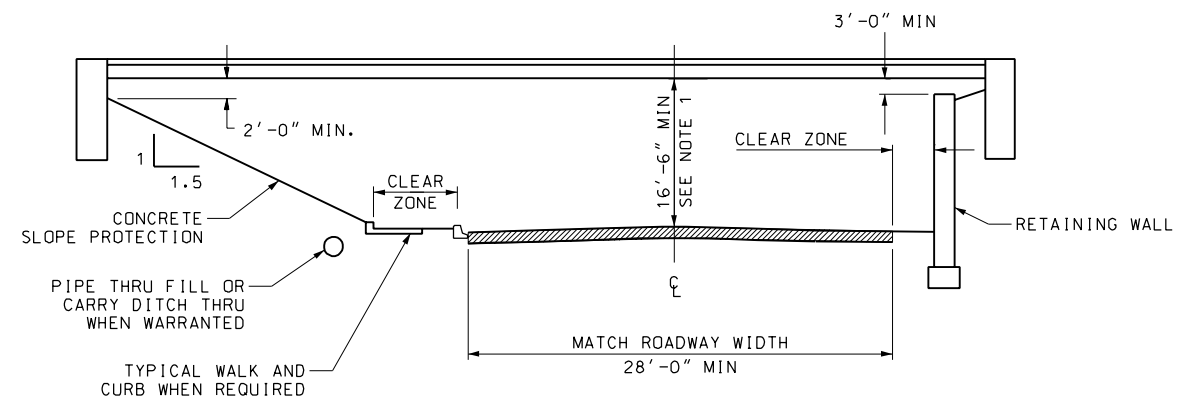
815-6

RECOMMEND GW-11



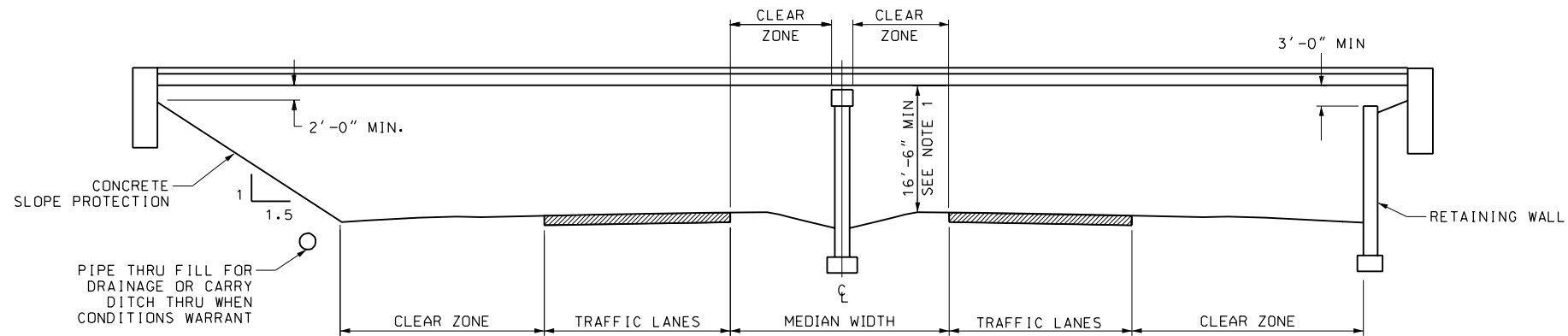
MINIMUM UNDERPASS CLEARANCE

(OTHER THAN FREEWAY OR MAJOR HIGHWAY)



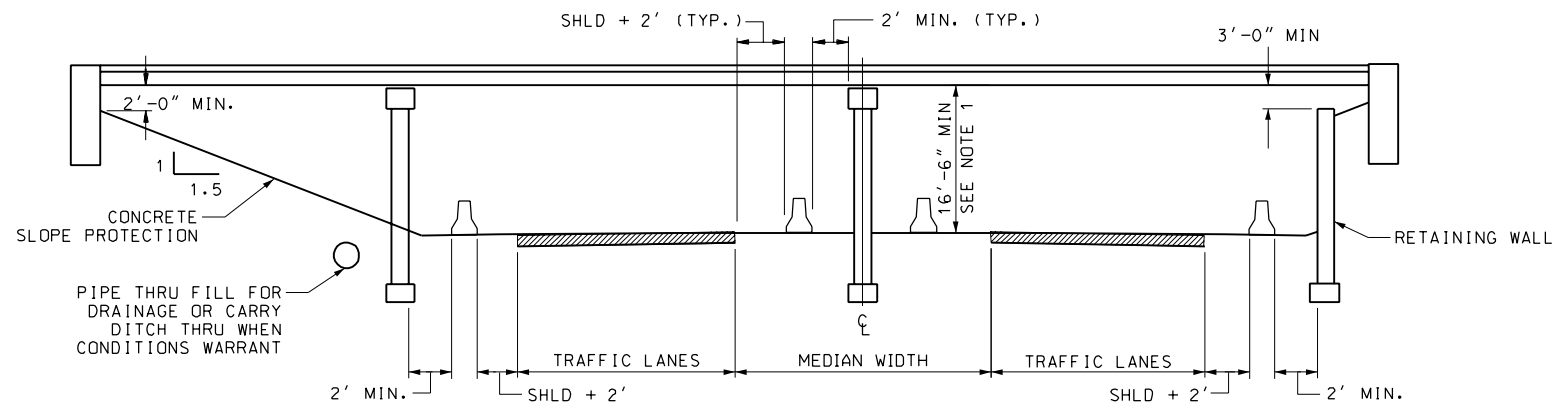
PREFERRED UNDERPASS CLEARANCE

(OTHER THAN FREEWAY OR MAJOR HIGHWAY)



PREFERRED UNDERPASS CLEARANCE

(FREEWAY OR MAJOR HIGHWAY)



MINIMUM UNDERPASS CLEARANCE

(FREEWAY OR MAJOR HIGHWAY)

NOTES:

1. A RANGE OF 6 INCHES WILL BE ALLOWED ABOVE THE MINIMUM CLEARANCE SHOWN EXCEPT WHEN OTHER GEOMETRIC CONSIDERATIONS GOVERN.
2. PROVIDE ADEQUATE PROTECTION FOR OBSTRUCTIONS WITHIN THE CLEAR ZONE.
3. PROVIDE A MINIMUM OF 17' 6" VERTICAL CLEARANCE FOR PEDESTRIAN OVERPASSES AND OVERHEAD SIGN STRUCTURES.
4. USE CURRENT EDITION OF THE AASHTO ROADSIDE DESIGN GUIDE FOR CLEAR ZONE REQUIREMENTS.
5. FOR:
 - 40 MPH AND UNDER
 - USE 4'-0" MINIMUM WITH CURB
 - USE 1/2 CLEAR ZONE WITHOUT CURB
 - 45 MPH AND ABOVE
 - USE CLEAR ZONE OR BARRIER

REVISIONS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL

CHAIRMAN STANDARDS COMMITTEE

APPROVED

DEPUTY DIRECTOR

(ENGLISH)

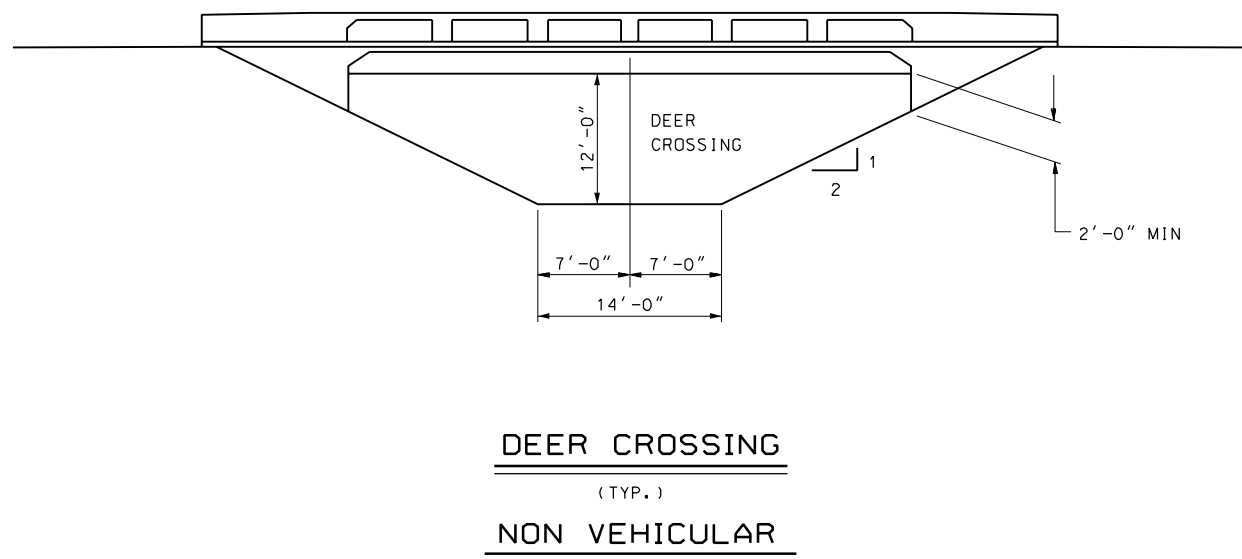
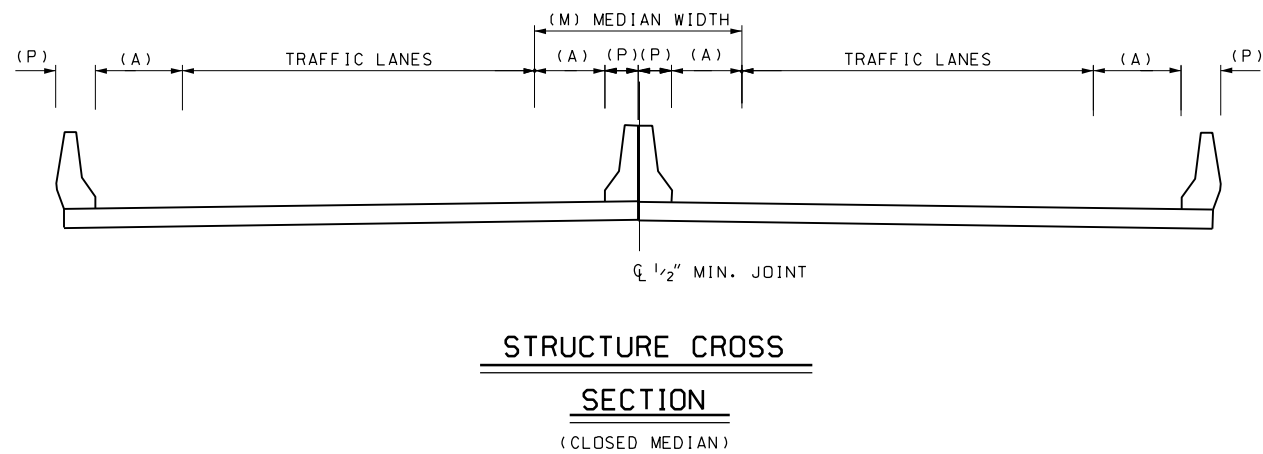
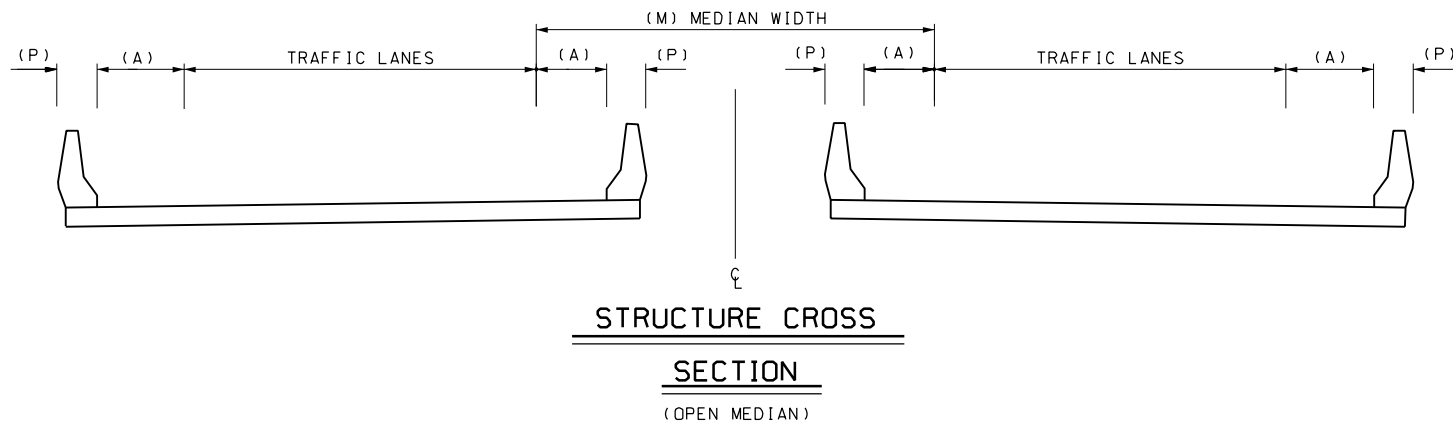
STRUCTURAL GEOMETRIC
DESIGN STANDARDS
CLEARANCES

STANDARD DRAWING TITLE

STD. DWG. NO.

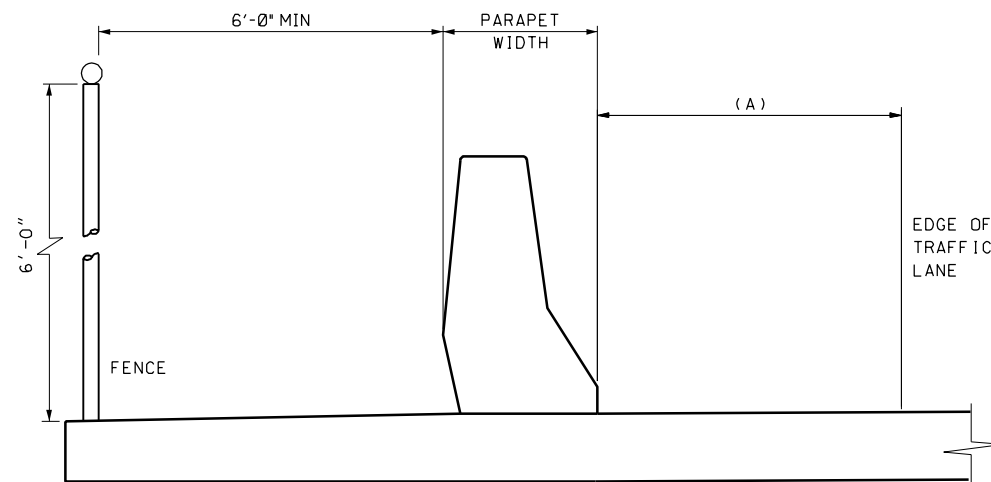
DD

815-7A



LEGEND

- (A) NORMAL SHOULDER PLUS 2'-0" FOR BARRIER OFFSET ON ALL ROADS AND RAMPS.
- FOR TWO WAY SINGLE STRUCTURE MATCH ROADWAY WIDTH PLUS 2'-0" BARRIER OFFSET EACH SIDE.
- (M) WHEN MEDIAN WIDTH IS LESS THAN 30'-0" USE CLOSED MEDIAN STRUCTURE.
- (P) PARAPET DIMENSION CONTROLLED BY SPECIFIC DESIGN.



REVISIONS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL

CHAIRMAN STANDARDS COMMITTEE
APPROVED

DEPUTY DIRECTOR

DATE

DATE

APPR.

REMARKS

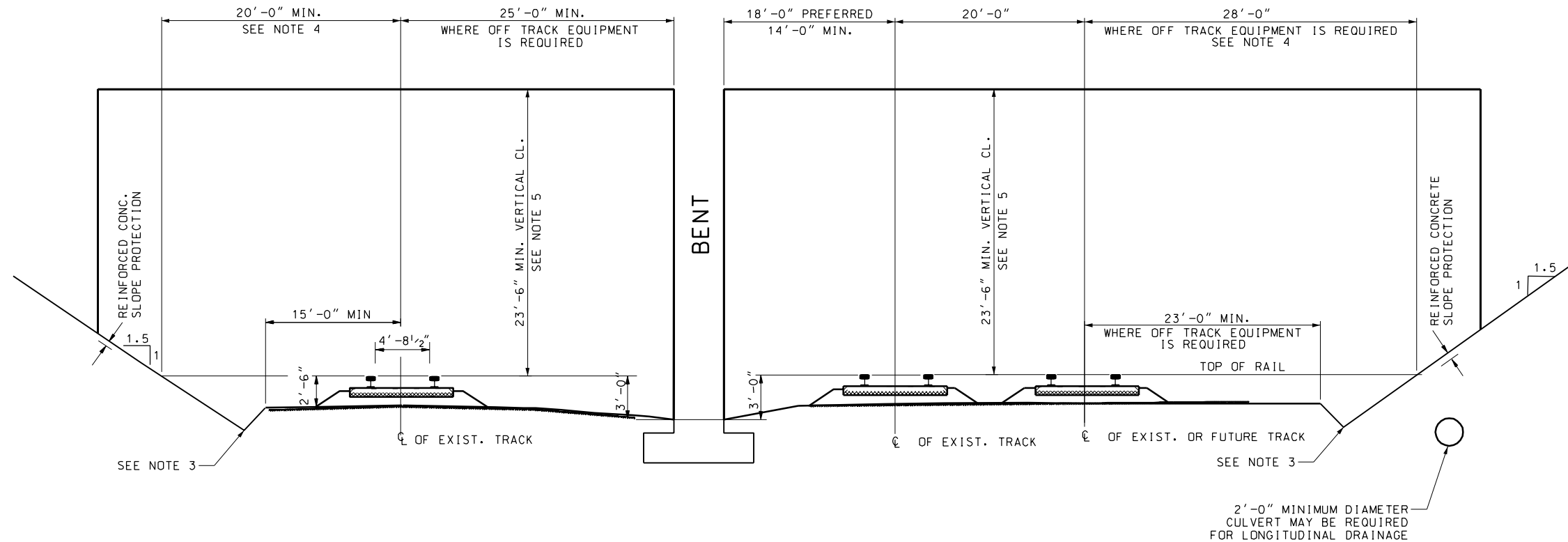
STRUCTURAL GEOMETRIC
DESIGN STANDARDS

STANDARD DRAWING TITLE

STD DWG

DD

815-7



NOTES

1. THE DIMENSIONS SHOWN CONTROL THE TOE OF THE SLOPES.
2. HORIZONTAL CLEARANCES SHOWN ARE NORMAL TO THE CENTERLINE OF THE TRACK. USE REDUCED CLEARANCES WHEN REQUIRED BY SPECIAL CONDITIONS AND WITH APPROVAL OF THE RAILROAD INVOLVED.
3. DETERMINE THE SIZE OF THE CUT DITCH BY A HYDRAULIC ANALYSIS.
4. INCREASE DISTANCE AT INDIVIDUAL STRUCTURE LOCATIONS AS APPROPRIATE TO PROVIDE FOR UNUSUAL DRAINAGE, OR SNOW STORAGE.
 - a. PIPE THE CUT DITCH OR INCREASE THE DISTANCE TO ACCOMMODATE A LARGER CHANNEL IF JUSTIFIED BY HYDRAULIC ANALYSIS.
 - b. INCREASE THIS DISTANCE TO PROVIDE SPACE FOR HEAVY OR DRIFTING SNOW IF JUSTIFIED BY THE RAILROAD.
5. A RANGE OF 6" WILL BE ALLOWED ABOVE THE MINIMUM VERTICAL CLEARANCE SHOWN EXCEPT WHEN OTHER GEOMETRIC CONSIDERATIONS GOVERN.

815-8

REVISIONS

NO.	DATE	APPR.	REMARKS

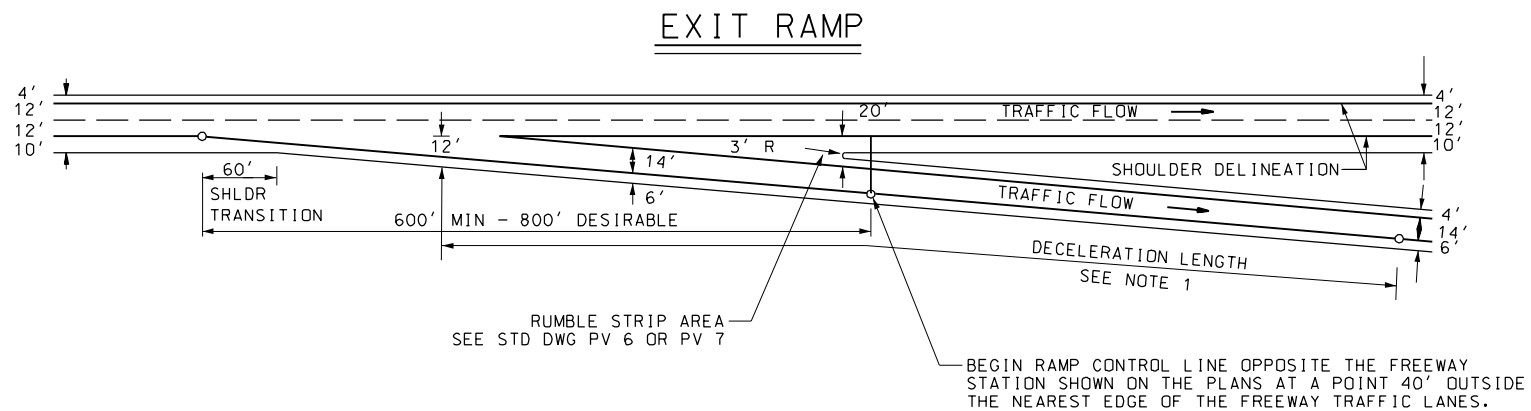
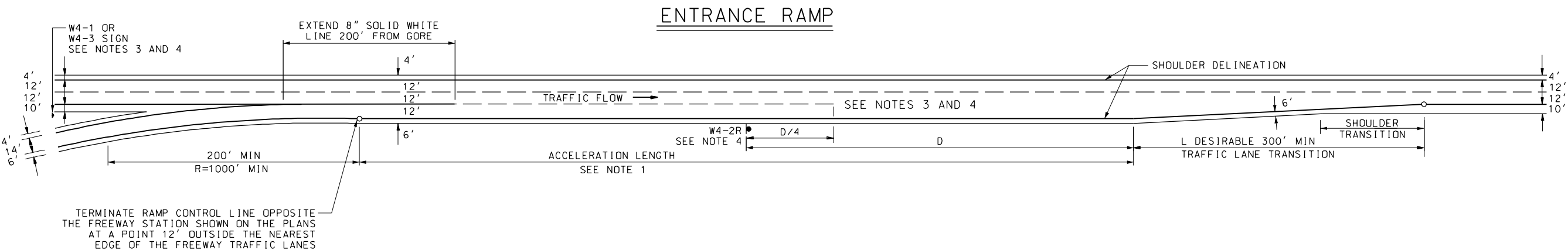
UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL
CHAIRMAN STANDARDS COMMITTEE
APPROVED
DEPUTY DIRECTOR
DATE
DATE

RAILROAD CLERANCES
AT HIGHWAY
OVERPASS STRUCTURES

STANDARD DRAWING TITLE

STD DWG
DD



NOTES:

1. USE CURRENT EDITION OF THE AASHTO A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR DESIGN OF ROADWAY ELEMENTS.
2. USE CURRENT EDITION OF THE AASHTO ROADSIDE DESIGN GUIDE FOR CLEAR ZONE REQUIREMENTS.
3. USE MERGE SIGN (W4-1) WHEN TANGENT RAMP LENGTH IS EQUAL TO AASHTO ACCELERATION LENGTH.

PLACE BROKEN LINE TO THE HALFWAY POINT OF THE AASHTO ACCELERATION LENGTH WHEN USING THE W4-1 SIGN.

DO NOT USE LANE ENDS SIGN (W4-2) WHEN USING THE W4-1 SIGN.
4. USE ADDED LANE SIGN (W4-3) WHEN TANGENT RAMP LENGTH EXCEEDS THE AASHTO ACCELERATION LENGTH.

PLACE BROKEN LINE AND DOTTED LINE AS PER STD DWG ST 3 WHEN USING THE W4-3 SIGN.

PLACE LANE ENDS SIGN (W4-2) ONLY WHEN USING THE W4-3 SIGN.
5. SEE STD DWG ST 3 FOR PAVEMENT MARKINGS.

[illegible]

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL

CHAIRMAN STANDARDS COMMITTEE
APPROVED

DEPUTY DIRECTOR

(ENGLISH)

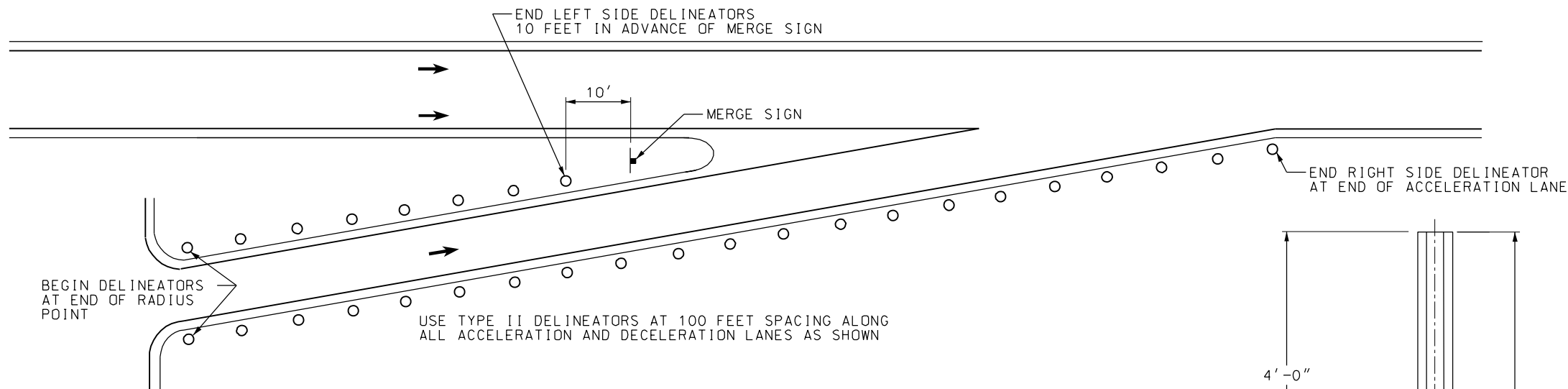
ENTRANCE & EXIT RAMP GEOMETRICS

STANDARD DRAWING TITLE

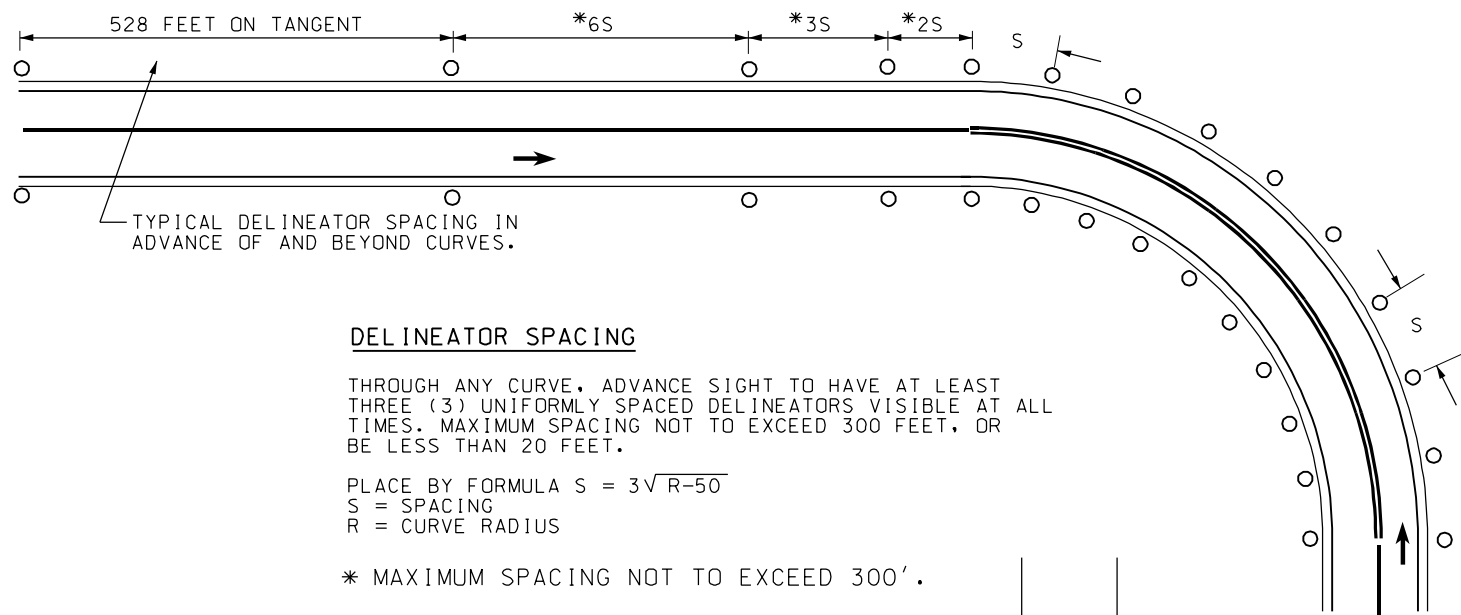
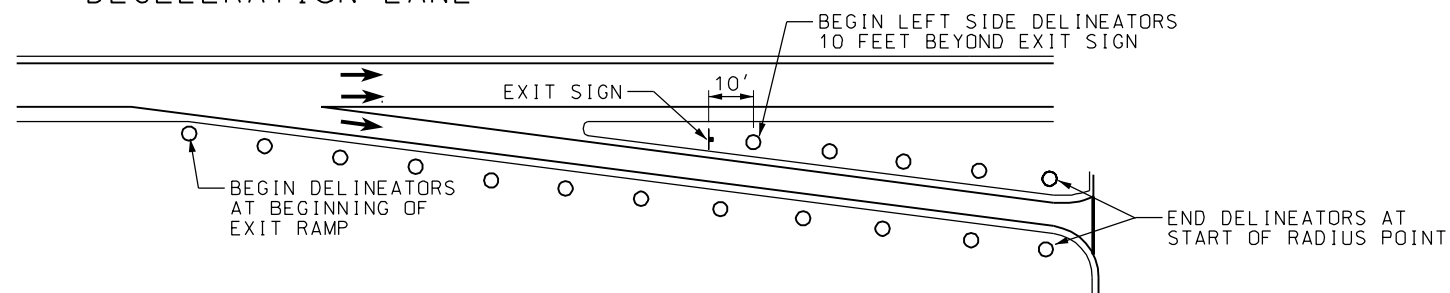
STD. DWG. NO.

825-1a

ACCELERATION LANE



DECELERATION LANE

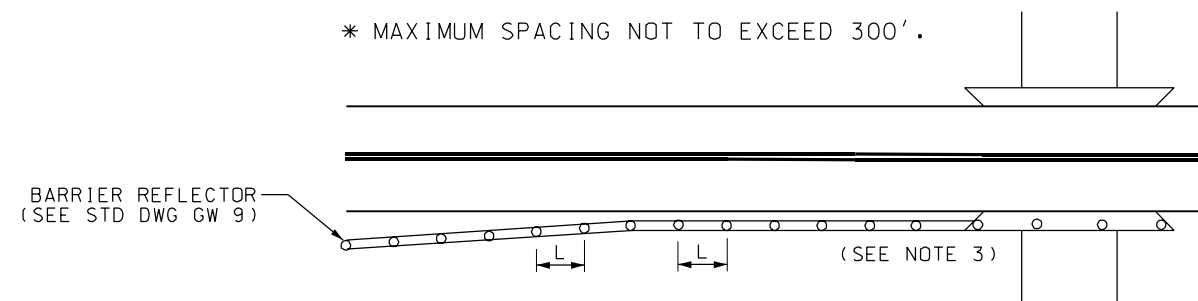


DELINEATOR SPACING

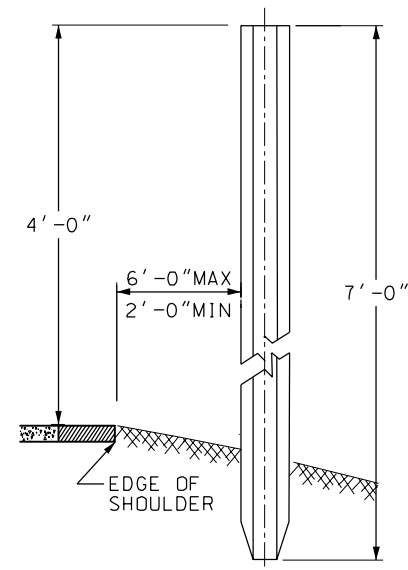
THROUGH ANY CURVE, ADVANCE SIGHT TO HAVE AT LEAST THREE (3) UNIFORMLY SPACED DELINEATORS VISIBLE AT ALL TIMES. MAXIMUM SPACING NOT TO EXCEED 300 FEET, OR BE LESS THAN 20 FEET.

PLACE BY FORMULA $S = 3\sqrt{R-50}$
 S = SPACING
 R = CURVE RADIUS

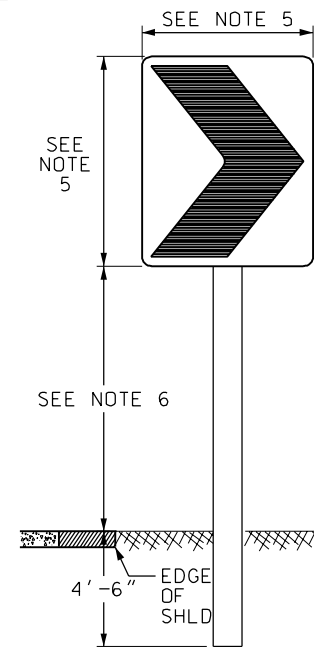
* MAXIMUM SPACING NOT TO EXCEED 300'.



BARRIER REFLECTOR DETAIL
(SEE NOTE 2)



DELINEATOR



CHEVRON ALIGNMENT SIGN

NOTES:

- BARRIERS ARE DEFINED AS BEING GUARDRAIL, CONCRETE BARRIER & BRIDGE PARAPET WALL.
- MOUNT BARRIER REFLECTORS ON ENTIRE LENGTH OF BARRIER AS PER BARRIER TYPE STANDARD.

USE REFLECTOR SPACING (L) OF 50 FEET IN PERMANENT LOCATIONS, AND 25 FEET FOR TEMPORARY SITUATIONS.

USE REFLECTOR COLOR TO MATCH THE ADJACENT PAINT STRIPE.
- IF GUARDRAIL IS NOT ATTACHED TO PARRAPET, INSTALL APPROPRIATE OBJECT MARKER OM-3R (OR L OR C) IN PLACE OF DELINEATOR AT LEADING EDGE OF BRIDGE PARAPET.
- CHEVRON ALIGNMENT (W1-8) SIGNS MAY BE USED WHEN ADDITIONAL EMPHASIS AND GUIDANCE FOR A CHANGE IN HORIZONTAL ALIGNMENT IS NEEDED. THE W1-8 SIGNS MAY BE USED AS AN ALTERNATE OR SUPPLEMENT TO STANDARD DELINEATORS ON CURVES OR TO THE LARGE ARROW (W1-6) SIGN.

WHEN USED, INSTALL THE W1-8 SIGNS ON THE OUTSIDE OF A TURN OR CURVE, IN LINE WITH, AND AT APPROXIMATELY A RIGHT ANGLE TO APPROACHING TRAFFIC.

THE W1-8 SIGN SHOULD BE VISIBLE FOR A SUFFICIENT DISTANCE TO PROVIDE THE ROAD USER WITH ADEQUATE TIME TO REACT TO THE CHANGE IN ALIGNMENT. SPACE THE SIGNS SUCH THAT THE ROAD USER ALWAYS HAS AT LEAST TWO SIGNS IN THEIR VIEW UNTIL THE CHANGE OF ALIGNMENT ELIMINATES THE NEED FOR A SIGN.
- USE W1-8 SIGN SIZE AS FOLLOWS:
 - FOR CONVENTIONAL ROADS USE 24" X 30".
 - FOR EXPRESSWAYS USE 30" X 36".
 - FOR FREEWAYS USE 36" X 48".
- USE 7' MIN, 7'6" MAX MOUNTING HEIGHT ON INTERSTATE, EXPRESSWAY, AND URBAN AREAS. USE 5' MIN, 7'6" MAX IN RURAL AREAS.
- USE CONSISTENT MOUNTING HEIGHT AT EACH LOCATION.

REVISED	REVISIONS	T.T.	REVISED	ENTIRE	DRAWING
1	02/11/03				

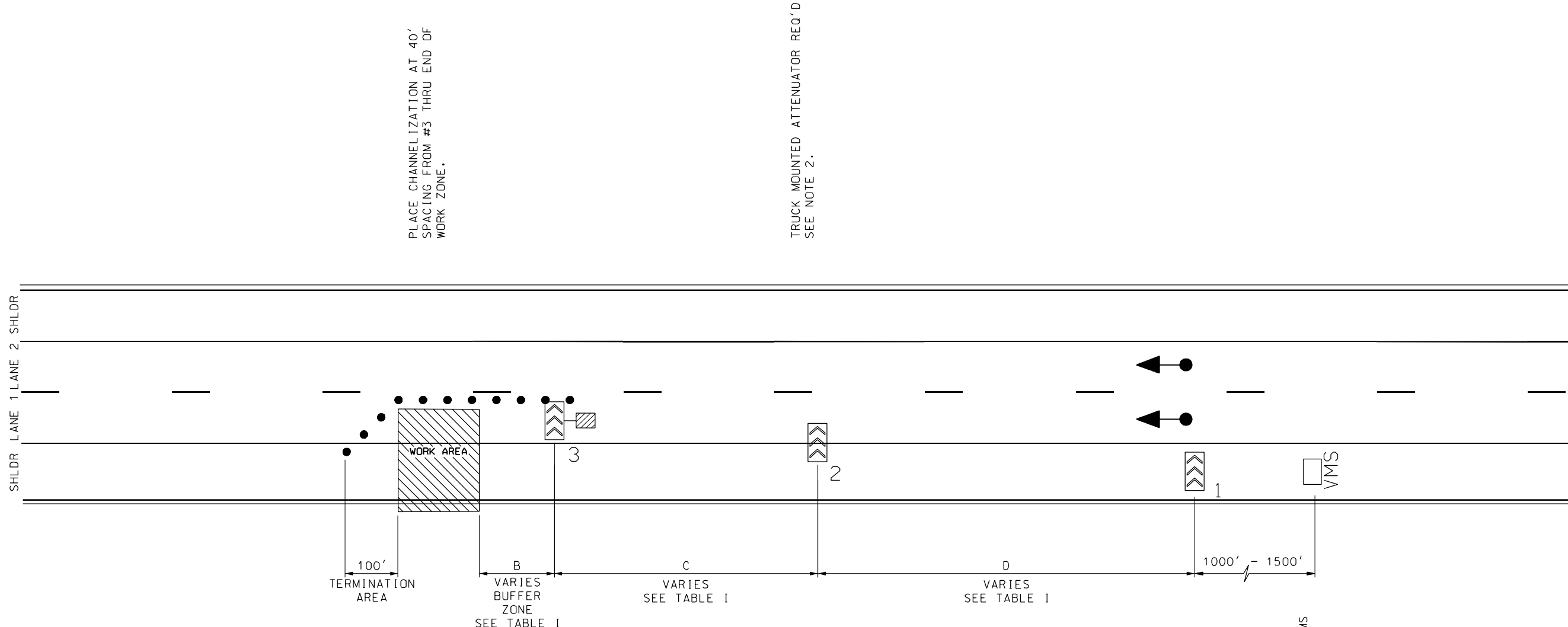
UTAH DEPARTMENT OF TRANSPORTATION
 STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
 SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL	DATE	APPROVED	DATE
CHAIRMAN STANDARDS COMMITTEE	FEB.27.2003		
DEPUTY DIRECTOR	FEB.27.2003		

DELINEATION
APPLICATION

STD DWG
GW 10

SINGLE LANE MOVING/INTERMITTANT OPERATION FOR MULTI-LANE HIGHWAYS OF 2 OR MORE LANES
WITH STOP DURATION OF LESS THAN 1 HOUR



SPACING REQUIREMENTS			
TABLE I			
MPH	B**	C*	D
≤40	100	160	300
45	110	270	400
50	140	300	450
55	170	330	500
60	210	360	500
65	250	390	500
70	300	420	500
75	350	450	500

* BASED ON 12' TRAFFIC LANE WIDTH
** 1/2 BUFFER ZONE REQUIREMENT, STD DWG TC 2B

NOTES:

1. ALL VEHICLES TO HAVE ARROW PANELS SET TO LANE CLOSURE ARROW.
2. TRUCK MOUNTED ATTENUATOR REQUIRED ON VEHICLE #3. OPTIONAL ON VEHICLES #1 AND #2.
3. DURATION AT ANY ONE LOCATION NOT TO EXCEED 1 HOUR.
4. PROVIDE ADVANCE ROAD CONSTRUCTION NOTIFICATION BY PLACING PORTABLE VMS FROM 1000' - 1500' IN ADVANCE OF VEHICLE #1, PLACED ON SHOULDER.
5. PLACE ADVANCE SIGNING ON ALL RAMPS BETWEEN VEHICLE #1 AND PORTABLE VMS.
6. USE ATMS VMS SIGNS FOR ADVANCE WARNING/NOTIFICATION WHEN AVAILABLE.
7. USE STD DWG TC 18 FOR OPERATIONS REQUIRING TWO OR MORE LANES.
8. MAY BE USED FROM EITHER LEFT OR RIGHT SHOULDER.

LEGEND

- CHANNELIZATION DEVICE
- ◀● DIRECTION OF TRAFFIC
- ◀◀◀ ARROW PANEL
- ◀◀◀ TRUCK MOUNTED ATTENUATOR (TMA)
- VARIABLE MESSAGE SIGN (VMS)

REVISIONS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

TRAFFIC CONTROL
SINGLE LANE CLOSURE
MOVING/INTERMITTENT
OPERATION

STD DWG
TC 17

RECOMMENDED FOR APPROVAL
CHAIRMAN STANDARDS COMMITTEE
APPROVED
DEPUTY DIRECTOR
DATE
DATE
DATE

REMARKS

NO.
DATE
APPR.

REVISIONS

TRUCK MOUNTED ATTENUATOR REQ'D
SEE NOTE 2.

TRUCK MOUNTED ATTENUATOR REQ'D
SEE NOTE 2.



NOTES:

- ### LEGEND

- UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL

CHAIRMAN STANDARDS COMMITTEE
APPROVED

DEPUTY DIRECTOR

TRAFFIC CONTROL MULTILANE CLOSURE MOVING/INTERMITTENT OPERATION

STANDARD DRAWING TITLE

STD DWG
TC 18

REMARKS

APPR.	
-------	--

DATE

DATE _____

1

1

OR

DIR

DEF

TLE

CONCLUSIONS

DARD

5

Standard Committee Submittal Sheet

Name of preparer: Murari Pradhan, Karl Vehaeren

Title/Position of preparer: Bituminous Engineer, Construction Engineer

Specification/Drawing/Item Title: Specification

Specification/Drawing Number: 01452

Date Process Started: 2001

Date Process Completed: July 5, 2003

Status: ' Approved ' Disapproved ' Sent Back For Review

Enter appropriate priority level: 2

(See last page for explanation) _____

Sheet not required on editorial or minor changes to standards.

Complete the following: (Use additional pages as needed.)

- A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.
- There are different PI requirement for the rigid and flexible of same category pavement (PI of 5 in/mile for PCCP and 7 in/mile for HMA) in current specification. The requirement of 5 in/mile is made as standard for both rigid and flexible Category 1 pavements and 7 in/mile for Category 2.
 - Incentive and disincentive were not defined in the current specification in one place. Special provision smoothness specification for Hot Mix Asphalt (HMA) is implemented as a part of the HMA specification. By keeping the smoothness specification for the different kind of HMA surfaces and Portland Cement Concrete Pavement (PCCP) in one place will help the Engineers and Contractors for easy reference. Moreover, the smoothness specification will not have to change each time HMA or PCCP specification is changed. So the Profilograph and Smoothness specification will be a standalone document.
 - Smooth pavement is number one public demand. Also, pavement with smooth surface is proven to last longer. It pays to have a smooth pavement. The construction industry can provide smoother road for a price. The proposed specification addresses this and incentive/disincentive tables are clearly defined for each class and type of pavement. Successful implementation as special has proven to the satisfaction of the contractors that it works.
 - Whole specification is reviewed for the clarity for different HMA surfaces such as chip seal and OGSC.

B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

- This specification will not have Measurement and Payment of its own. This specification is a part of the paving specifications. The price of the smooth surface will be paid as Incentive and disincentive to the respective pavement specifications.

C. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

- This specification has gone through revision at Regional Materials Engineers meeting attended by all Materials Engineers, FHWA representative, Construction Engineers representative (Karl Verhaeren), Maintenance Engineer representative (Craig Haskell) and others for comment and approval.

Construction Engineers

- All four Regional Construction Engineer and Darrell Giannonatti are informed of the changes in specification formally and/or informally.
- Region Four Construction Engineer Karl Verhaeren is the major author of the changes and implemented the specification as a special in several projects last year and this year.

Contractors

- The specification has gone through the Utah Paving Council meeting, which is attended by consultants, contractors, suppliers and FHWA representative. This is also tested as special specification to the satisfaction of the concerned contractors.

Suppliers

- The specification has gone through the Utah Paving Council meeting, which is attended by consultants, contractors, suppliers and FHWA representative. This is also tested as special specification to the satisfaction of the concerned suppliers.

Consultants (as required)

- The specification has gone through the Utah Paving Council meeting, which is attended by consultants, contractors, suppliers and FHWA representative.

Others (as appropriate)

D. Costs? (Estimates are acceptable.)

1. Additional costs to average bid item price.

- There is no additional cost to average bid item price. Contractors have bought Material Transfer Vehicle and used in the projects to improve smoothness for the incentive dollars without increase in the bid items.

2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).

- Smoother roads add life of the pavement and need less maintenance thus minimizing maintenance activities through the life of pavement.

3. Life cycle cost.

- Smoother road last longer thus add life to the pavement thus reducing the overall life cycle cost.
- Smoother road give higher mileage per gallon of gas, thus saving dollar for the driving public and reducing life cycle cost.

E. Safety Impacts?

- Undoubtedly, the smoother road is safer to the traveling public.

F. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.

- In the past smoothness specification with incentive/disincentive has been used with success in other projects as special provision to the HMA specification.
- The level of smoothness achieved by the latest construction practices has been increasing due to the improvement in lay-down equipment and general awareness by contractor and engineers to meet the public demand.
- We have introduced the Zero Blanking Band specification as the special to improve overall smoothness measurement. This may follow the current specification once implemented in several projects as specials specification.

Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

- | | |
|------------|---|
| Priority 1 | Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised. |
| Priority 2 | Upon posting, this impacts projects being advertised. |
| Priority 3 | Upon posting, the approved standard takes effect two weeks later for projects being advertised. |

SECTION 01452

PROFILOGRAPH AND SMOOTHNESS

PART 1 GENERAL

1.1 ~~SECTION INCLUDES~~

- A. ~~Materials and procedures for smoothness testing of (HMA) Hot Mix Asphalt, Open Graded Surface Course (OGSC) and Portland Cement Concrete Pavement (PCCP).~~
- B. ~~Requirements for 25-foot wheel base, California type profilograph with electronic data recording, storing, data reduction, and printing capabilities.~~

1.2 ~~RELATED SECTIONS~~

- A. ~~Section 02741: Hot Mix Asphalt (HMA)~~

1.3 ~~ACCEPTANCE~~

- A. ~~Test as work progresses and accept in lots equal to the number of square yards placed each day.~~
- B. ~~Thin Lifts:~~
 - 1. ~~Evaluate and accept the finished surface in 0.10 mile sections.~~
 - 2. ~~Begin the initial section at the start of the project. Lay out subsequent sections consecutively to the end of the project.~~
 - 3. ~~If the final section is less than 0.10 mile, add the section to the previous full 0.10 mile section. Otherwise, evaluate the section individually.~~

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Materials and procedures for smoothness testing of (HMA) Hot Mix Asphalt, Open Graded Surface Course (OGSC) and Portland Cement Concrete Pavement (PCCP).
- B. Requirements for 25-foot wheel base, California type profilograph with electronic data recording, storing, data reduction, and printing capabilities.

1.2 RELATED SECTIONS

- A. Section 02741: Hot Mix Asphalt (HMA)
- B. Section 02748: Prime Coat/Tack Coat
- C. Section 02752: Portland Cement Concrete Pavement
- D. Section 02786: Open-graded Surface Course (OGSC)

1.3 GENERAL REQUIREMENTS

- A. Certify profilograph operators and equipment through the Department. Engineer verifies certifications.
- B. Comply with project Traffic Control Plan and all applicable safety requirements when performing profilograph testing.
- C. Contractor Quality Control
 - 1. Comply with requirements identified in Section 02741, Part 3, Article 3.8, Contractor Quality Control.
 - 2. Address the following minimum items in the QCP:
 - a. Identify person(s) responsible for managing smoothness issues and monitoring compliance with requirements.
 - b. Identify equipment used to measure and monitor smoothness along with calibration and correlation information.
 - c. Identify personnel responsible for operation of equipment and their qualifications.
 - d. Identify construction methods employed to obtain smoothness, including:

- Method of grade control for rotomilling and paving operations.
- Actions taken to prevent paver from stopping and starting, including any use of additional equipment.
- Placement of manholes outside of projected wheel paths and methods of matching surface elevations and slopes
- e. Identify potential problems that could interfere with meeting pavement surface requirements.
- f. Describe grinding process and operation:
 - Equipment and operators
 - Must-grind layout, grade control, sealing process, etc.
 - Schedule

1.4 ACCEPTANCE

- A. Notify the Engineer in writing a minimum of two working days prior to scheduling Department inspection of acceptance testing on the final pavement surface, after all corrective work has been performed.
 - 1. Clearly define the areas to be tested for acceptance in the written notification.
 - 2. Do not perform any work on the final surface after acceptance testing, except as directed by the Engineer.
- B. The Department evaluates the surface by section, defined as:
 - 1. Traffic lane, 0.1 mi in length, including adjacent shoulder with a design width 8.0 ft or less, meeting the Class I description. (See Table 01452-1)
 - a. Testing consists of a single trace measurement of each wheel path, defined as a continuous parallel line 2.5 ft inside the projected lane lines, of the traffic lane.
 - b. Testing of adjacent shoulder consists of a single trace measurement approximately centered in the shoulder when the design width is 6.0 ft or greater. Do not test shoulders having design widths less than 6.0 ft.
 - c. Determine the Profile Index (PI) by taking the average of all profile traces taken on the section.
 - 2. Shoulder, 0.1 mi in length, with a design width greater than 8.0 ft, meeting the Class I description.
 - a. Testing consists of two profile traces, 2.0 ft inside each edge, approximately centered in the shoulder.
 - b. Determine the Profile Index (PI) by taking the average of profile traces taken on the section.
- C. Begin the initial section(s) at the start of the project. Lay out subsequent sections consecutively to the end of the project.

- D. The Department does not measure the PI for Class II surfaces.
- E. The Department evaluates longitudinal and transverse deviations for both Class I and Class II surfaces.
- F. If the final lift of pavement cannot be completed due to seasonal limitations, the Department evaluates all roadway sections paved through the final lift and evaluates the remaining final lift of pavement upon completion.
- G. All work necessary to prepare the pavement for testing, such as but not limited to sweeping, is incidental to the work and is not measured for payment. Include all costs and resources to prepare the pavement for testing and correction in the surfacing bid items.

1.5 MEASUREMENT AND PAYMENT PROCEDURE

- A. Include smoothness testing in the pavement being placed.

PART 2 PRODUCTS

2.1 FRAME

- A. Construction:
 - 1. All welded of light-weight square aluminum tubing in three separate units of the same dimensions in width and within 6 inches in length of each other.
 - 2. Design: reinforced truss.
- B. Length:
 - 1. Effective wheel base of the frame assembly: 25 ft.
 - 2. Overall length with multiple wheel assemblies attached: not to exceed 35 ft.
- C. Frame Connections:
 - 1. Indexed with steel location pins or dowels to prevent misalignment of frame assembly.
 - 2. Secured with quick acting clamps rated at a minimum of 800 lbs each.
- D. Parts: Each of the three frame units manufactured to allow interchangeable replacement of individual units.

2.2 WHEEL SUPPORT ASSEMBLIES

- A. Tubing: All welded, light-weight square aluminum.

- B. Connections: All connection points between wheel assemblies and frame sections secured with quick-acting clamps.
- C. Support wheels: Cast aluminum hubs with ball bearing supported steel axles and cushion rubber tires. Caster wheel assemblies: Ball bearing supported.
- D. Front Wheels: Steerable from the center of the machine.
- E. Rear Wheels: Quick setting manual adjustment to allow for short radius turning, moving laterally, and for trimming to avoid crabbing on superelevations.

2.3 RECORDING WHEEL

- A. Light weight, 24 inch to 26 inch nominal diameter, and heavy duty spokes.
 - 1. Tire: pneumatic tube type with non-aggressive tread design.
 - 2. Frame: all welded of light-weight square aluminum tubing. Frame pivot points and rotating shafts supported by sealed ball bearings.

2.4 GENERAL MECHANICAL

- A. All exposed steel components anodized, nickel plated, or zinc plated for corrosion protection.
- B. Interchangeable parts.
- C. Capable of being broken down in segments that can fit into the back of a standard pickup truck or van for ease of transport.
- D. Constructed to allow complete assembly in less than 15 minutes without tools.

2.5 AC POWER GENERATING UNIT

- A. Self-contained, capable of delivering 120 VAC at 60Hz.
- B. Mount on the frame with appropriate vibration and shock control hardware.

2.6 MICROCOMPUTER

- A. Control the system by a dedicated on-board microcomputer.

- B. The microcomputer components replaceable and interchangeable with like items from the manufacturer's stock to facilitate controller repairs and provide the following minimum operation characteristics:
 - 1. Processor:
 - a. Minimal 16 bit microprocessor capable of running at a nominal 8 MHz processing speed.
 - b. On-board memory sufficient to store Profile Index (PI) and bump Discrimination software.
 - c. RAM memory sufficient to input control parameters and process project documentation variables at the test site.
 - 2. Displacement Transducer Interface:
 - a. Contains an analog to digital converter compatible with the operating characteristics of the microprocessor.
 - b. Include signal conditioning for analog filtering and scaling.
 - c. Overall resolution for displacement transducer less than or equal to 0.004 inches.
 - 3. Odometer Transducer Interface: Provides digital logic to encode positive or negative signals to microprocessor.
 - 4. Clock:
 - a. Provides time and calendar functions to microprocessor unit automatically.
 - b. Independent battery power required to avoid documentation errors and input data losses caused by on-board power shut downs.

2.7 TRANSDUCERS

- A. Rated to withstand shock, vibration, dust, and extremes of humidity. Operational from -30 degrees C to 100 degrees C.
 - 1. Vertical Displacement Transducer: Resolution of 0.01 inches.
 - 2. Odometer: horizontal resolution of 0.39 inches and operational in either an incrementing or decrementing mode.
 - 3. Temperature transducer: Accurate to " 1 degree C.

2.8 PRINTER/PLOTTER

- A. Compatible with and provide suitable interfaces with the microprocessor.
- B. The data acceptance (baud rate) and buffer storage capacity: adequate to fully register, plot, and accept data from a 4 mph operational run without excessive wait states.

- C. Dot matrix mechanism (if applicable): print bar resolution of 100 dots per inch with a row resolution of 200 rows per inch.

2.9 OPERATOR CONTROL PANEL

- A. Located within easy access of the operator and in a location on the profilograph that does not hinder other operational functions or line of sight to testing path.
- B. Control panel with a digital display, data input key board, observable indicators, (video or screen) and operator actuated control switches.
- C. Parameters entered, displayed, and printed as follows (all numeric):
 - 1. Time
 - 2. Date
 - 3. Region, route and pavement
 - 4. Pass number
 - 5. Beginning Station
 - 6. Ending Station
 - 7. Odometer
 - 8. Blanking band width
 - 9. Bump height
 - 10. Bump width
 - 11. Event marker

2.10 REPORTING REQUIREMENTS

- A. Determine Profile Index, documentation, reports, outputs, or example, as specified. UDOT Materials Manual, 8-995.
- B. Set preprogrammed or operator entered scaling or sensitivity factors at a sensitivity level that to correlate with Department profilographs.
- C. Include the following documentation supplied with the Profilograph system:
 - 1. Operator's Manual.
 - 2. Wiring Diagrams.
 - 3. Industry standard part number or name and model numbers for complete subsystems.

PART 3 EXECUTION

~~3.1 TESTING AND CORRECTING PAVEMENT~~

- ~~A. Provide rotating amber lights or strobe light so the device and operator are highly visible from front or rear.~~
- ~~B. Appropriately certify operators. Engineer verifies certification.~~
- ~~C. The Engineer or representative witnesses all profile testing for acceptance.~~
- ~~D. Run a Profile Index within two working days, starting 100 ft before the beginning of the day's placement and ending 50 ft before the end of the day's placement.
 - ~~1. A day's production for categories 1, 2, and 3 is defined as a minimum of 4000 yd² of pavement placed in a single day.~~
 - ~~2. A day's production for categories 4 and 5 is the length between intersections.~~
 - ~~3. Group quantities smaller than 4000 yd² with the subsequent day's production.~~
 - ~~4. Profile Index is defined as the average of the two profiles taken as described.~~~~
- ~~E. Take two profiles for each traffic lane 3 ft from each edge of the traffic lane.
 - ~~1. Evaluate in 0.1 mile consecutive sections.~~
 - ~~2. Use a blanking band of 0.2 inch.~~
 - ~~3. Match stationing to pavement stations.~~~~
- ~~F. Do not include side street intersections and returns in the Profile Index.~~
- ~~G. Do not include bridges in the Profile Index. Start and end the profile index 15 ft from each bridge approach or existing pavement that abuts new pavement, running in the same direction as the pavement.~~
- ~~H. Correct all deviations in pavement exceeding the limits specified in Table 1.
 - ~~1. Remove all high points with an approved grinding device or a device consisting of multiple blades.~~
 - ~~2. Re-profile the areas requiring corrective action for correction verification.~~
 - ~~3. Skid resistance of final surface must be equal to or better than adjacent sections not requiring corrective work.~~
 - ~~4. Re-saw to proper depth, clean, and reseal all transverse joints in the ground area (concrete only).~~
 - ~~5. Taper ground areas from the lane/shoulder line into the shoulder area at the rate of not greater than 0.25 inch/ft.~~
 - ~~6. Seal all ground areas with an asphaltic tack coat (0.03 gal/yd² to 0.06 gal/yd²), and sand (asphalt only).~~~~
- ~~I. Traffic control for grinding or sawing is at no additional cost to the Department.~~

~~J. Conduct a final profilograph run from start to end of the project including all structures for both directions of travel after all corrective work is completed. Profilographs become the property of the Department, and are used for informational purposes.~~

~~K. Provide the profiles to the Engineer or representative at the completion of each record testing run.~~

~~3.2 HOT MIX ASPHALT~~

~~A. Comply with the provision in Table 1.~~

~~Table 1~~

Pavement Smoothness Category	Surface Smoothness Criteria Hot Mix Asphalt			
	Class I and II Mainline Surface		Class III Mainline Surface	
Category	Section PI	Deviation in 25 ft	Section PI	Deviation in 25 ft
	inch/mile	inch	inch/mile	inch
1	7	0.3	9	0.3
2	10	0.3	12	0.4
Category 1 Category 2	National Highway System and Truck Haul Routes: Table 11, Section 02741. All other routes.			
Class I and II	Mainline surfaces consist of all through traffic and climbing lanes including bridges and bridge approach slabs with final riding surfaces of asphalt pavement. Excluded are (1) the portions on horizontal curves having a centerline radius of curvature less than 1000 ft and (2) areas within the superelevation transition to such curves.			
Class III	Mainline surfaces consist of all acceleration and deceleration lane ramps, tapers, shoulders wider than 6 ft without rumble strips, and surfaces excluded from Class I and II due to horizontal curves.			

~~3.3 TESTING THIN LIFTS~~

~~A. Place temporary traffic control devices as approved by the Engineer prior to and during surface testing.~~

~~B. Run a profile trace in each projected approximate wheel path contained in the paving pass.~~

- ~~1. Each wheel path is defined as a continuous parallel line 3 ft from the projected lane lines for the new surface.~~
- ~~2. Include all manholes, culverts, box outs, approach slabs, structures, or appurtenances that are located within the wheel path.~~
- ~~3. Do not include intersections in the profile index. Limit intersection smoothness to bump removal.~~

~~C. Preliminary Surface Testing:~~

- ~~1. Calibrate the profilograph and make filter and setting adjustments as necessary to correlate with Department profilograph. Profilograph required to read within 10 percent of Department's profilograph on the same segment of roadway.~~
- ~~2. Determine the initial Profile Index for each 0.10 mile section taking the average of all profiles traces taken on the section.~~

~~D. Finished surface:~~

- ~~1. For traces on the beginning and ending segments of the project, extend the trace an additional 30 ft into the adjacent pavement. Use the additional length for locating grind sections only, not for determining the Profile Index for that section of pavement.~~
- ~~2. Run all Profile Traces within two working days after pavement has been placed including pavement for or around all manholes, culverts, box outs, approach slabs, structures, or appurtenances.~~
- ~~3. The Engineer witnesses a profile testing for acceptance.~~
- ~~4. Correct all individual profile deviations with an approved grinding device or a device consisting of multiple blades.~~
 - ~~a. Limit longitudinal smoothness requirements to a 0.3 inch bump in 25 ft as identified by the Profilograph.~~
 - ~~b. Limit transverse smoothness requirements to a 0.3 inch bump in 25 ft as identified by string lining or straight edge.~~
- ~~5. Seal all ground areas with an asphalt tack coat (0.03 gal/yd² to 0.05 gal/yd²) and sand.~~
- ~~6. Determine the Final Profile Index for each 0.10 mile section by taking the average of all profiles traces taken on the section.~~

~~3.4 TESTING OPEN GRADED SURFACE COURSE (OGSC)~~

~~A. Surface Requirements: Correct all deviations exceeding the limits in Table 2 with approved grinding device, or device consisting of multiple blades. Take an additional profilograph run after grinding.~~

~~B. Limit transverse smoothness requirements to 0.3 inch bump in 25 ft.~~

Table 2

Pavement Smoothness Category	Surface Smoothness Criteria — Open Graded Surface Course			
	Class I and II Mainline Surface		Class III Mainline Surface	
Category	Section PI	Deviation in 25 ft	Section PI	Deviation in 25 ft
	inch/mile	inch	inch/mile	inch
1 2	7 10	0.3 0.3	9 12	0.3 0.3
Category 1 Category 2	National Highway System and Truck Haul Routes: Table 4, Section 02741. All other routes.			
Class I and II	Mainline surfaces consist of all through traffic and climbing lanes including bridges and bridge approach slabs with final riding surfaces of asphalt pavement. Excluded are (1) the portions on horizontal curves having a centerline radius of curvature less than 1000 ft and (2) areas within the superelevation transition to such curves.			
Class III	Mainline surfaces consist of all acceleration and deceleration lane ramps, tapers, shoulders wider than 6 ft without rumble strips, and surfaces excluded from Class I and II due to horizontal curves.			

~~3.5 TESTING PORTLAND CEMENT CONCRETE PAVEMENT~~

~~A. Comply with the provisions in Table 3.~~

Table 3

Surface Smoothness Criteria — Portland Cement Concrete Pavement					
Pavement Smoothness Category	Class I Mainline Surface		Class II Mainline Surface		Class III All Other Surfaces
	Section PI	Deviation in 25 ft	Section PI	Deviation in 25 ft	Deviation in 10 ft
	inch/mile	inch	inch/mile	inch	inch

1	5	0.3	7	0.3	1/8
2	5	0.3	7	0.4	1/8
3	7	0.3	9	0.4	3/16
4	10	0.4	12	0.4	3/16
Category 1	Rural Interstate Highways				
Category 2	Urban Interstate Highways and Non-Interstate Freeways				
Category 3	All other Rural Highways				
Category 4	Urban Highways				
Class I	Mainline surfaces consist of all through traffic and climbing lanes including bridges and bridge approach slabs with final riding surfaces of concrete. Excluded are the portions of horizontal curves having a centerline radius of curvature less than 1000 ft and areas within the superelevation transition to such curves.				
Class II	Mainline surfaces consist of all acceleration and deceleration lane ramps, tapers, shoulders wider than 6 ft without rumble strips, and surfaces excluded from Class I due to horizontal curves.				

3.1 HMA AND OGSC

A. Construction Requirements

1. Construct finished pavement to meet the surface requirements in Table 01452-1.
2. Identify defects exceeding the limits in Table 01452-1 and correct prior to acceptance testing.
 - a. Analyze the profile using 0.2 inch blanking band.
 - b. Correct defects across the entire width of the traffic lane or shoulder either by grinding with a device approved by the Engineer, or by milling and filling as directed by the Engineer.
 - c. Re-profile for correction verification prior to acceptance testing.
3. Correct transverse defects where the pavement surface varies more than 1/8 inch from the lower edge of a 10 foot straightedge placed perpendicular to the centerline of the roadway.
4. Seal ground areas with asphalt tack coat and blotter material.
 - a. Use a tack coat application rate between 0.07 and 0.14 gal/yd².
 - b. Meet blotter material requirements in Section 02748, Part 2, Article 2.1.
5. The Department inspects acceptance testing prior to the placement of Chip Seal Coat, when applicable.

B. Incentive/Disincentive - HMA

1. Incentive/Disincentive applies only to Class I surfaces for each pavement section defined in Article 1.4, Line B.
 - a. Incentive/Disincentive is calculated according to Table 01452-2, with partial sections prorated based on length.
 - b. Incentive/Disincentive does not apply to HMA surfaces on projects requiring OGSC.
 - c. Any section requiring grinding exceeding 20 yd² does not qualify for incentive. Disincentive remains applicable for sections where grinding exceeds 20 yd².
2. Any section still requiring corrective work that is identified at the time of acceptance testing results in loss of incentive for the section. Disincentives remain applicable and are based on PI obtained at the time of acceptance testing.
3. Failure to correct defects, identified at the time of acceptance testing, within 14 calendar days after notification by the Engineer results in liquidated damages assessed at \$100.00 per day after 14 calendar days per each section needing corrective work.
 - a. Liquidated damages may be waived by the Engineer if it is determined to be in the best interests of the Department to defer corrective work.

C. Incentive/Disincentive - OGSC

1. Incentive/Disincentive applies only to Class I surfaces for each pavement section defined in Article 1.4, Line B.
 - a. Incentive/Disincentive is calculated according to Table 01452-3, with partial sections prorated based on length.
2. Any section requiring grinding exceeding 20 yd² or any section still requiring corrective work that is identified at the time of acceptance testing results in a disincentive of \$1000.00 per section.
3. Failure to correct defects, identified at the time of acceptance testing, within 14 calendar days after notification by the Engineer results in liquidated damages assessed at \$100.00 per day per each section needing corrective work.
 - a. Liquidated damages may be waived by the Engineer if it is determined to be in the best interests of the Department to defer corrective work.

3.2 PORTLAND CEMENT CONCRETE PAVEMENT (PCCP)

A. Construction Requirements

1. Construct finished pavement to meet surface requirements listed in Table 01452-1.
2. Identify defects exceeding the limits in Table 01452-1 and correct prior to acceptance testing.
 - a. Analyze the profile using 0.2 inch blanking band.

3. Correct defects across the entire width of the traffic lane or shoulder by grinding with a device approved by the Engineer.
 - a. Re-profile for correction verification prior to acceptance testing.
4. Correct transverse defects where the pavement surface varies more than 1/8 inch from the lower edge of a 10 foot straightedge placed perpendicular to the centerline of the roadway.

B. Incentive/Disincentive - PCCP

1. Incentive/Disincentive applies only to Class I surfaces for each pavement section defined in Article 1.4, Line B.
 - a. Incentive/Disincentive is calculated according to Table 01452-4, with partial sections prorated based on length.
2. Any section requiring grinding exceeding 20 yd² does not qualify for incentive.
3. Any section still requiring corrective work that is identified at the time of acceptance testing results in loss of incentive for the section. Disincentives remain applicable and are based on PI obtained at the time of acceptance testing.
4. Failure to correct defects, identified at the time of acceptance testing, within 14 calendar days after notification by the Engineer results in liquidated damages assessed at \$100.00 per day per each section needing corrective work.
 - a. Liquidated damages may be waived by the Engineer if it is determined to be in the best interests of the Department to defer corrective work.

Table 01452 - 1 Surface Requirements				
Pavement Category	Class I Surface		Class II Surface	
	Section PI	Profile Deviation	Section PI	Profile Deviation
Category	in/mi	in/25ft	in/mi	in/25ft
1	5	0.3	N/A	0.3
2	7	0.3	N/A	0.3
Category 1	National Highway System and Truck Routes (See Section 02741, Table 11) and all other routes with surfaces having three or more opportunities for improving the ride.*			
Category 2	All other routes incorporating single lift overlays with not more than two opportunities for improving the ride.*			
Class I	Surfaces consist of all through traffic and climbing lanes, passing lanes, acceleration and deceleration lanes, shoulders, ramps and turn lanes longer than 1000 ft, including bridges and bridge approach slabs with final riding surfaces placed on the contract. Excluded are horizontal curves having a centerline radius of curvature less than 900 ft and areas within the superelevation transitions to these short radius curves.			
Class II	Surfaces consist of all tapers, road approaches, mainline pavement sections with posted regulatory speeds less than 35 MPH, pavement within 15 ft of bridge decks and approach slabs not paved as part of the project, pavement to a point 50 ft beyond the paving limits of the project and all other surfaces not included in Class I and surfaces excluded due to horizontal curves.			

* Each opportunity to improve the ride is one of the following: Placing a gravel or treated base course, OGSC, rotomilling, cold recycling, and each lift of paving. Leveling is not considered as an opportunity to improve the ride.

Table 01452 – 2 HMA	
Category	Incentive/Disincentive per Section
1	\$60 x [(Required in/mi) - (PI)]
2	\$30 x [(Required in/mi) - (PI)]

Table 01452-3 OGSC	
Category	Incentive/Disincentive per Section
1	\$150 x [(Required in/mi) - (PI)]
2	\$100 x [(Required in/mi) - (PI)]

Table 01452-4 PCCP	
Category	Incentive/Disincentive per Section
1	\$200 x [(Required in/mi) - (PI)]
2	\$125 x [(Required in/mi) - (PI)]

END OF SECTION

Standard Committee Submittal Sheet

Name of preparer: Larry Gay, Howard Anderson

Title/Position of preparer: Region 4 Materials Engineer, Engineer For Pavements

Specification/Drawing/Item Title: In-Place Cold Recycled Asphaltic Base

Specification/Drawing Number: Section 02962

Date Process Started: _____

Date Process Completed: _____

Status: ' ☐ Approved ' ☐ Disapproved

' ☐ Sent Back For Review

Enter appropriate priority level: 3

(See last page for explanation) _____

Sheet not required on editorial or minor changes to standards.

Complete the following: (Use additional pages as needed.)

- A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

This is a new Standard. It has been used as a Special Provision for several years in Region 4. It has been requested by the RME's that we make it a full Standard.

This specification was nearly approved last Fall. It was delayed because there was no mix design process included. A mix design procedure was put together and added to the Materials manual Part 8-970. This has been approved by the FHWA. The 02962 is now ready to become a full Standard.

- B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

The M and P section should be modified for this specification: For example:

Bid item number: **02962**

1. In-place Cold Recycle Asphaltic Base

Unit of M and P: Square Yard

Includes quick lime, and

additives to complete the In-Place Cold

Recycle Asphaltic Base process. The Department will not pay separately for quick lime, additives, etc.

2. Emulsion

Unit of M and P: ton

- C. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

RME Committee and Utah Pavement Council.

Construction Engineers

Karl Verhaeren, UDOT Region 4.

Contractors

Arizona Profiling
Valentine Surfacing

Past Projects: Fish Lake low volume road
U.S. 89, Circleville Canyon
I-15, Summit to Paragona
I-15, Cottonwood to Anderson Junction
I-15, Baker Canyon to Meadow
I-70, Crescent Junction to Yellow Cat
SR-28, Fayette to Juan Co. Line (coal haul route)

Suppliers

Consultants (as required)

Others (as appropriate)

D. Costs? (Estimates are acceptable.)

1. Additional costs to average bid item price.

The average cost for In-Place Cold Recycled Asphaltic Base is \$2.50/square yard.

2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).

Not used as a wearing surface. It is overlayed with a virgin material. No operational costs are associated with it.

3. Life cycle cost.

Not available. Because the material is recycled it is efficient and cost competitive.

E. Safety Impacts?

Hot Lime used is caustic, but not a problem if standard safety practices are followed. We have no reported accidents because of this process on the previous projects. Our specifications do not claim to address all the safety issues involved.

F. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.

The first Region 4 project was in 1986 for a secondary route. Since then it has been used with success for several major and Interstate routes listed above.

Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

- | | |
|------------|---|
| Priority 1 | Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised. |
| Priority 2 | Upon posting, this impacts projects being advertised. |
| Priority 3 | Upon posting, the approved standard takes effect two weeks later for projects being advertised. |

SECTION 02962

IN-PLACE COLD RECYCLED ASPHALTIC BASE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Mill existing asphalt material to required depth and width.
- B. Mix with emulsified asphalt, quick lime slurry, and water if required, place to line and grade and compact.

1.2 RELATED SECTIONS

- A. Section 02745: Asphalt Material.

1.3 REFERENCES

- A. AASHTO T 26: Quality of Water to be Used in Concrete.
- B. AASHTO T 166: Bulk Specific Gravity of Compacted Bituminous Mixtures Using Saturated Surface-Dry Specimens.
- C. AASHTO T 245: Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus.
- D. ASTM C 110: Standard Test Methods for Physical Testing of Quicklime, Hydrated Lime, and Limestone.
- E. ASTM C 977: Standard Specification for Quicklime and Hydrated Lime for Soil Stabilization.
- F. ASTM D 2950: Test Method for Density of Bituminous Concrete in Place by Nuclear Method
- G. UDOT Materials Manual of Instruction Part 8-970: Modified Marshall Mix Design For In-Place Cold Recycled Asphaltic Base.

1.4 SUBMITTALS

- A. Submit mix design for ENGINEER'S approval prior to commencing cold recycling operation.
- B. Provide a Manufacturer's Certificate of Compliance for Quick Lime.

1.5 ACCEPTANCE

- A. The Department runs five density tests on each test lot.
 - 1. A test lot is defined as the amount of cold recycled material placed during one full day's production.
 - 2. Each density test consists of the mean of three in-place nuclear wet density tests. ASTM D 2950.
 - 3. Establish the target density by obtaining a sample of loose material from the roadway just ahead of the rolling operation.
 - a. Heat sample in oven at 140 degrees F for 2 hours maximum.
 - b. Compact mix immediately using standard 50 blow Marshall procedure. AASHTO T 245.
 - c. The target for roadway compaction is 96 percent of the mean of 3 Marshall briquettes for each test lot. AASHTO T 166.
- B. The Engineer verifies the surface with a 10-ft straightedge at selected sites. Correct surface variations in excess of 3/8-inch by removing or adding material.

PART 2 PRODUCTS

2.1 MATERIALS

- A. In-Place Cold Recycled Asphaltic Base gradation:

<u>Sieve Size</u>	<u>Percent Passing</u>
1-1/2 inch	100

- B. Use asphalt emulsion as shown on the plans. Refer to Section 02745.
- C. Use high calcium pebble quick lime (Hot hydrated lime slurry) that has a minimum dry solids content of 35 percent by weight and that is a pumpable suspension of solids in water. Quick lime slurry must conform to ASTM C 977 using test method ASTM C 110.

- D. Use 1-1/2% quick lime by weight of cold recycled base. No separate payment will be made for quick lime. Include all costs for quick lime slurry in In-Place Cold Recycled Asphaltic Base.
- E. Use potable water for the quick lime slurry. AASHTO T 26.

2.2 EQUIPMENT

- A. Use self-propelled equipment with sufficient power, traction and stability to maintain an accurate depth of cut.
- B. Use equipment that will process full depth and lane width in one pass, with screening and crushing capability.
- C. Use a machine capable of mixing the pulverized material, emulsified binding agent, and quick lime slurry to a homogeneous mixture.
- D. Provide lime slurry equipment that accurately proportions quick lime and water, mixes these ingredients to obtain proper slaking, and maintains a uniform, homogenous slurry. Agitate slurry sufficiently to prevent separation while transporting. Add the lime slurry to the pulverized surfacing by a spray bar at the cutting head on the mill. Accurately meter the slurry into the recycled materials.
- E. Use a mixing machine capable of placing the mixed material into a windrow or directly into the hopper of a paver.
- F. Separate machinery may be used for mixing.
- G. Use a positive displacement pump capable of accurately metering the required quantity of additive down to a minimum rate of 4 gallons per minute.
- H. Use a mixing machine that has a meter capable of measuring the flow and total delivery of the additive.
- I. When a pick-up machine is used to feed the paver, it must be capable of picking up the entire windrow.
- J. Use 30-ton minimum pneumatic rollers.

PART 3 EXECUTION

3.1 PREPARATION

- A. Clean or clear away all debris and vegetation within 1 ft of pavement edge.

3.2 RECLAIMED MATERIALS

- A. Mill pavement to required depth and width.
- B. Control dust created by the cutting action.
- C. Crush or screen the reclaimed material to pass a 1-1/2 inch sieve.
- D. Reclaimed material must be free of organic materials, soil, or other foreign substances.

3.3 PLACEMENT

- A. Place the mixed material with a self-propelled bituminous paver.
- B. Adjust emulsion content as pavement conditions change. Repair reclaimed materials when surface ruts or ravels before placement of final wearing surface.
- C. Use watering device to prevent materials from adhering to the tires for breakdown or intermediate rolling.
- D. Add water to milled material as necessary to facilitate uniform mixing.
- E. Continue breakdown rolling until no displacement is noted.
- F. Use steel wheel rollers in static or vibratory mode as required for final rolling.
- G. Wait 72 hours after a rain or confirm that moisture content is less than 1.5% before placing flush, tack, or final surfacing on cold recycled material.

3.4 LIMITATIONS

- A. Do not disturb underlying crushed aggregate base.
- B. Do not heat screed.

- C. Do not park roller or leave idle on uncompacted recycled surface.
- D. Perform recycling operations when ambient temperature exceeds 50 degrees F in the shade and pavement temperature exceeds 70 degrees F. Stop recycling operations when weather is foggy or rainy.
- E. Prohibit traffic on compacted recycled material for 2 hours after compacting is completed. Remove all loose aggregates by power brooming before allowing traffic on the compacted recycled material.

END OF SECTION

Standard Committee Submittal Sheet

Name of preparer: Farrell Wright

Title/Position of preparer: Standards Engineer

Specification/Drawing/Item Title: Control of Work Article 1.5 Coordinating Plans,
Standard Specifications and Special Provisions

Standard Specification Standard Specification 00727

Date Process Started: June 2003

Date Process Completed: _____

Status: ' Approved ' Disapproved ' Sent Back For Review _____

Enter appropriate priority level:

(See last page for explanation) _____

Sheet not required on editorial or minor changes to standards.

Complete the following: (Use additional pages as needed.)

- A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

During the Standards Section Region 2 meeting held on Monday April 7, 2003 the question was asked if the Measurement and Payment should have a governing ranking as written in Section 00727 Article 1.5 B.

- B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

N/A

C. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

Construction Engineers

Contractors

Suppliers

Consultants (as required)

Others (as appropriate)

Region 2 felt that it was worthy of having a governing ranking so that all individuals associated with enforcing and constructing from UDOT standards understands that M & P is a viable document and has a priority in UDOT's scheme.

D. Costs? (Estimates are acceptable.)

1. Additional costs to average bid item price.

N/A

2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).

N/A

3. Life cycle cost.

N/A

E. Safety Impacts?

N/A

F. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.

When Measurement and Payment was part of the specifications it was considered a number 3 governing ranking. Now that M & P is a separate document and it is inserted into the Contract Bid Book, is there a need to have a governing ranking?

Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

- | | |
|------------|---|
| Priority 1 | Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised. |
| Priority 2 | Upon posting, this impacts projects being advertised. |
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- B. Furnish to the Department structure plans with working drawings that detail required work not included in the Contract Plans.
- C. Include the cost of furnishing all working drawings in the related Contract Bid Items.

1.4 CONFORMITY WITH PLANS AND SPECIFICATIONS

- A. Perform work and furnish materials to meet Contract requirements.
- B. If the Contract provides for acceptance of a Contract item not complying fully with the minimum requirements, the Department uses the specified pay adjustment factors for payment.
- C. When a Contract item fails to meet Contract requirements but is adequate to serve the design purpose, the Engineer decides the extent to which the work will be accepted and remain in place. The Engineer documents the basis of acceptance by change order and adjusts the Contract Unit Price.
- D. Remove, replace, or correct work at no cost to the Department when a Contract item does not meet specified requirements and results in work inadequate to serve the design purpose.

1.5 COORDINATING PLANS, STANDARD SPECIFICATIONS, AND SPECIAL PROVISIONS

- A. All supplementary documents are essential parts of the Contract and a requirement occurring in one is binding as though occurring in all. Supplementary documents are complementary and provide and describe the complete Contract.
- B. If there is a discrepancy, the governing ranking is:

Dimensions	Information
1. Plan	1. Special Provisions
2. Calculated	2. Plans
3. Scaled	3. Standard Specifications
	4. Standard Plans
	5. Measurement and Payment

- C. Do not take advantage of any apparent error or omission in the Contract.
- D. Notify the Engineer promptly of any omissions or errors in the Contract so that necessary corrections and interpretations can be made.